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CENTENNIAL EXPOSITION.

CATALOGUE

OF THE

EDUCATIONAL EXHIBIT

OF THE

STATE OF PENNSYLVANIA,

WITH

AN APPENDIX,

CONTAINING AN OUTLINE OF THE

SYSTEM OF PUBLIC INSTRUCTION

IN THE STATE.

26.6

FROM THE PRESS OF
THE INQUIRER P. & P. COMPANY,
LANCASTER, PA.
1876.

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PENNSYLVANIA
EDUCATIONAL HALL
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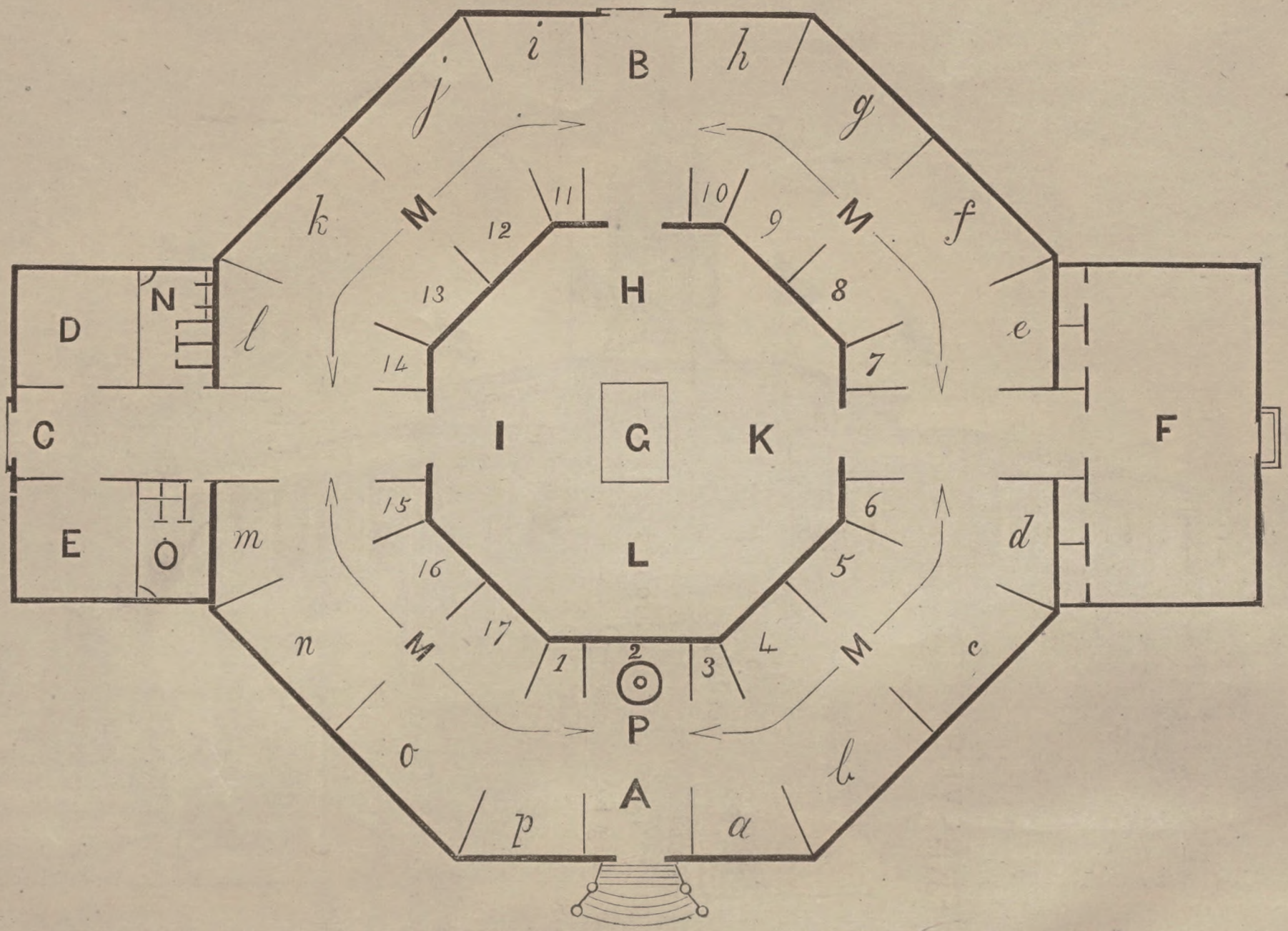

GROUND PLAN OF PENNSYLVANIA EDUCATIONAL HALL.

CENTENNIAL EXPOSITION, 1876.

EXPLANATION OF GROUND PLAN.

PENNSYLVANIA EDUCATIONAL HALL.

DIMENSIONS.—Size of building, without the wings, 100 feet by 100 feet. Size of wings, 40 feet by 24 feet. Size of inner room, H, I, K, L, 48 feet by 48 feet. Width of main aisle, M, 10 feet. Depth of alcoves, *a*, *b*, 1, 2, etc., 8 feet.

DESIGNATIONS.—A—Front Entrance. B, C—Entrances. D—Sitting Room. E—Office. F—Reception Room. M—Main Aisle. N, O—Wash Rooms.

LOCATION OF EXHIBITS—a—Kindergarten. b—Common School. c—District and County exhibits. d, e—City exhibits. f, g—Pittsburgh. h—Academies and Seminaries. i—Girard College. j—Normal Schools. k, l,—Colleges. m—Polytechnic College. n—Lafayette College. o—University of Pennsylvania. p—Department of Public Instruction. 1, 2, 3—School Ornamentation. 4, 5, 6—Soldiers' Orphan Schools. 7, 8—Sunday-schools. 9—Institution for the Blind. 10—Publications for the Blind. 11—Astronomical Apparatus. 12—Normal Schools. 13, 14—American Literary Union. 15—Peirce's Commercial College. 16, 17—Philadelphia School of Design for Women. The Institution for the Feeble-minded, and Shoemaker's School of Elocution, are at the entrance of the inner room, near H; Perot's Music Charts at the entrance, near K; and Butler's Maps at the entrance, near I. The room H, I, K, L is appropriated to school furniture, school apparatus, and text-books for schools. G—A Model of a Country School House and Grounds. P—A Fountain.

PREFATORY NOTE.

THE Pennsylvania Educational Hall, in which is displayed the educational exhibit of the State of Pennsylvania, was erected under the direction of the Superintendent of Public Instruction, with money appropriated by the Legislature for the purpose, and voluntarily contributed by school boards, institutions and individuals. A special building was erected because at the time the matter was taken up in earnest—about the first of March, 1876—the Centennial Commission could not furnish the amount of space desired for the exhibit. All the material displayed was furnished in response to a request for it, and not a single article sent in was rejected. The scholars' work exhibited is, therefore, considered no more than a fair sample of the work generally done in the schools from which it came.

By the aid of the plan of the building on the preceding page, any one can easily find whatever among the exhibits he may want to examine.

It should, perhaps, be remarked that the inner room, H, I, L, K, was originally designed for an assembly room in which to exhibit methods of teaching. It was proposed to have teachers bring in portions of their classes of all grades, from all kinds of schools and in all branches of study, and give a practical exemplification of their methods of imparting instruction. It was thought that the institutions for the Deaf and Dumb, the Blind and the Feeble-minded, would participate in these exercises. With a programme arranged in accordance with this view, it was not doubted that more could be done to exhibit the *life* of our system of public instruction than by the collection of any amount of dead educational material. The plan was abandoned only because there was too little time to organize it.

It is proper to add that the sketch of the Public School System of Pennsylvania, which is appended to the catalogue, while it may be of some use to our own people, is intended for the information of foreign gentleman now studying the educational institutions of this country. A General Index is placed at the end of the pamphlet.

COMMONWEALTH OF PENNSYLVANIA.

CATALOGUE.

DEPARTMENT OF PUBLIC INSTRUCTION.

1. A set of nine large Charts, showing the history, nature, organization, statistics, and growth of the system of public education in the State of Pennsylvania.

2. A Chart showing the statistics of the Normal Schools.

3. Two Charts showing an outline of the system of Orphan Schools, and containing the statistics of these schools.

4. A set of Certificates granted to teachers by Superintendents.

5. A set of Certificates and Diplomas granted to graduates of the Normal Schools.

6. A set of Commissions issued by the Department of Public Instruction to Superintendents, Trustees of Normal Schools, etc.

7. The Diploma granted to Soldiers' Orphans at sixteen years of age.

8. A School Map of Pennsylvania, showing the Educational Statistics of each county.

9. A Map of the State.

10. An Historical Map of the State.

11. Portraits as follows: John Breck, Senator, Chairman of the Joint Committee of the two Houses that framed the first Common School Law in 1834. George Wolfe, Governor, who advocated the passage of and signed the first Common School Law. Joseph Ritner, Governor, who, succeeding Wolfe, zealously upheld and

enforced the law. Thaddeus Stevens, who, in the House of Representatives in 1835, saved the law from repeal. Thomas H. Burrowes, who organized the system of Common Schools in the State, and spent his life in perfecting it. Henry C. Hickok, Charles R. Coburn and J. P. Wickersham, Superintendents.

12. A set of the Reports of the Superintendent of Public Instruction.

13. A set of Reports of the Superintendent of Soldiers' Orphan Schools.

14. Copies of the Digest of School Laws.

15. A complete set of bound volumes of the *Pennsylvania School Journal*, commencing January, 1852.

16. Specimen Copies of County Institute Reports.

17. Two portfolios containing full sets of all the forms used by the Department.

KINDERGARTENS.

ORGANIZED AND ARRANGED BY

MISS RACHEL S. WALK, OF PHILADELPHIA.

Seven Pennsylvania Kindergartens represented.

MISS ANNA BENNET'S, 23 SOUTH 19TH STREET, PHILADELPHIA. Specimens of Mats, woven; Forms of Beauty, paper-foldings; Perforations in Card-board; Perforations in Leaves; Embroidery, great variety of patterns. Work done by little pupils from 3 to 8 years old.

MRS. MULFORD'S AND MISS KENNARD'S, NO. 612 NORTH 13TH ST., PHILADELPHIA. Clay-modelings, Lion's head, Grapes, &c.; Peas work, several pieces; Embroidery, number of beautiful patterns; Perforations; Mats woven of paper.

MISS H. MCKEEVER'S, 20TH AND CHERRY STS., PHILADELPHIA. Embroidery, fine work; Paper Mats, woven in different patterns.

MISS H. C. FAYE'S, 225 BUSHKILL ST., EASTON, PA. Book-

marks, great variety; Mats; Baskets, woven of paper; Crosses, of different kinds of paper.

MISS C. L. WILSON'S, PENN AVENUE, PITTSBURGH. Forms of Beauty, paper foldings; Pastings; Liberty Bell; Embroidery; Specimens of Kindergarten Drawings; Weaving. Pupils from 3 years to 7 years.

MISS R. S. WALK'S, PHILADELPHIA. Forms of Life, paper foldings; Forms of Beauty, paper foldings; Pastings in paper; Paper interlacings; Paper intertwinings; Peas work, an old chair, and other varieties; Bird's-nest and Bird in clay; Clay Modelings of fruit; Wax flowers; 200 Mats, woven; Paper Lace; Flags of Nations, in paper cutting and pasting; Book marks, woven; Paper Baskets; Perforations, Fruit, Flowers, Animals and the Hemispheres; Embroidery; Stick and Slat-laying; Balls of Zephyr; Covered Balls in red, blue, yellow, green, orange and purple; Wheel-barrows; Sewing; Pricked cards. Youngest pupil in the Kindergarten, 2 years old.

MISS R. E. JUDKINS'S, PHILADELPHIA. Beautiful variety of woven Mats; Union Flag; Crosses; Perforations of different kinds; Mats with fringe.

KINDERGARTEN MATERIAL, from E. Steiger, 22 and 24 Frankfort St., New York, N. Y. Complete set of Gifts, also Kindergarten Literature.

KINDERGARTEN LITERATURE, Gifts, Games, &c., from Milton Bradley & Co., Springfield, Mass.; large quantity.

COMPLETE SET OF GIFTS, from J. W. Schermerhorn & Co., 14 Bond St., New York; also Kindergarten table and black-board.

KINDERGARTEN CHAIRS, from Heywood Bros., 804 Market St., Philadelphia.

CLOCK, from Mr. A. Krueger, 723 North 10th St., Philadelphia.

AQUARIUM, from Mr. Seal, 622 Arch St.

CASE OF WILD DUCKS, loaned by a friend.

BIRD CAGES, from E. Craft & Co., 9th and Market.

PICTURES, FLAGS, &c.

ROGERS' GROUP, *Hide and Seek*, through Mrs. E. E. Hutter.

A COMMON SCHOOL.

The following is a list of articles in the exhibit representing the furniture, apparatus, text-books, and scholars' work of a common country or village school.

1. FURNITURE.—Teachers' desk and chair. Pupils' desks and seats. Two cases of book-shelves.

2. APPARATUS.—Lovejoy'sWeather House; two sets Black-board Rubbers; Slated Globe, 12 in.; three Slate-pencil Holders; three Crayon Holders; three Black-board Dividers; Jeffers' Panoramic Apparatus; Spelling Stick; set of Letter Cards; Spelling Case; Mineral Case; set New Forms for Object Teaching; Gonigraph Metal; Gross Colored Crayons; Glass Prism, 4 in.; Glass Prism, 5 in.; Grammar School Cabinet of Minerals; Squires' Pen and Pencil Rack; four School Rulers; six Slate Rubbers; Variety of Medals; School Index; Mathematical Blocks dissected; set Willson & Calkin's School and Family Charts; Map and Chart Support; Numeral Frame; Sanders' Elocutionary Chart; Globe, Celestial; Globe, Terrestrial; Blackboard; Map of United States; Call Bell; set Johnson's Charts; Tellurian; Lovell's Clock; Thermometer; Barometer; Marcy's Sciopticon; Microscope; set Sanders' Charts; set McCaskey's Lancaster School Mottoes; Stereoscope; Webster's Unabridged Dictionary; Lippincott's Gazetteer; Bible; set of Johnson's Drawing Models; Cabinet Organ (Miller's); Spencerian Writing Chart; Townsend's Chart of Constitution of U. S.

3. TEXT-BOOKS.—Sample copies of some of the books used in the Common Schools of Pennsylvania.

4. SCHOLARS' WORK.—Specimens of scholars' work in common schools, bound in volumes and prepared on slates.

DISTRICT AND COUNTY EXHIBITS.

ARMSTRONG COUNTY.

A Chart containing the educational statistics of the county, and drawings of four of the school buildings.

BEDFORD COUNTY.

1. From Everett Borough, photograph of the School Building.

2. A Chart of Bedford County, showing the number of schools, teachers, and pupils, and the number studying the several branches.

BERKS COUNTY.

1. A County Map showing the location and character of all the school houses.

2. Four volumes of Scholars' Work from the High School of Hamburg, the Grammar Schools of Bernville, Kutztown, and Womelsdorf, the Secondary School of Kutztown, and the Ungraded School of Monocacy.

3. One Portfolio of drawings from School No. 6, Maxatawny Township.

4. Three Photographs of school houses.

BLAIR COUNTY.

1. One large drawing of school building.

BUCKS COUNTY.

1. A School Map, 5½ feet by 5 feet, of the county, giving location of school houses.

2. A School Map, 40 inches by 42 inches, of Newtown Township, with photographs of directors, teachers, and houses.

3. A School Map, 34 inches by 35 inches, of Wrightstown Township, with photographs of school houses on margin.

4. Five Bound Volumes of Scholars' Work.

5. One Bound Volume of samples of Statistical Reports of Teachers, Superintendent, and School Boards.

6. Three framed Sample Certificates to schools for proficiency in spelling at Local Institutes.

7. Four copies of Literature Pamphlets used at county institutes.

8. A framed copy of the Lord's Prayer, executed with the pen.

CAMBRIA COUNTY.

1. From Johnstown, Two Volumes of Manuscripts, 109 in number, in Ancient History, U. S. History, Arithmetic, Geograraphy, and Grammar.

2. Eighteen large Maps.

3. Seven Maps, 8 inches by 10 inches, bound.

CAMERON COUNTY.

1. Two Books, one "From Cameron County," the other "From Emporium High School," both containing maps, music, printing, and specimens of penmanship and drawing.

2. Two Maps of the United States in frames, drawn with pencil and rule.

8. One original drawing representing 1776 and 1876, framed.

CENTRE COUNTY.

1. One County Chart showing the area, population, districts, and schools.

CHESTER COUNTY.

From Coatesville: Two Volumes of Class Examination Papers. Volume 1 contains a set from each of the four regular classes in the High School and from a mixed class. Volume II. contains a set from the 1st and 2d Grammar Departments, and from the 1st Primary Department.

CLARION COUNTY.

1. From Foxburg Ungraded School, History, Grammar, and Spelling Exercises, and Photograph of School Building.

2. From Clarion County Institute, Rimersburg, Grammar Exercise and Photograph of Building.

CRAWFORD COUNTY.

1. Teacher's Monthly Report Card.

2. Scholars' Work from Cochranton Graded School, first grade, and from Saegertown Graded School, first grade.

DAUPHIN COUNTY.

1. Two framed Photographs of School Buildings.

DELAWARE COUNTY.

1. Five Photographs of School Buildings from Radnor township, one from Springfield township and four from Upper Darby.

2. Three framed Maps, one of the County, one of Radnor township, and one of Upper Darby.

3. A Map of the United States in blocks.

4. Two Portfolios of Maps, from Upper Darby township and South Chester borough.

5. Seven Volumes of Manuscript Work; three from the Schools of Media, two from Upper Darby, one from the Grammar School of Leiperville, and one from the Grammar School of South Chester borough.

ELK COUNTY

One large Photograph of a School Building in Ridgway.

INDIANA COUNTY.

1. A picture of the Indiana Public School Building.
2. A picture of the West Indiana Public School Building.

JEFFERSON COUNTY.

1. A photograph of the Graded School Building in Punxsutawney Borough.

2. A photograph of the Graded School Building in Reynoldsville Borough.

LANCASTER COUNTY.

1. Ten photographs of school-houses. Three from Lancaster City, one from Strasburg Borough, one from Mount Joy Borough, one from Elizabethtown Borough, one from Manheim Borough, one from Litiz, one from East Donegal Township, and one from Lancaster Township.

2. Six drawings of school-houses: Four from Mount Joy Borough, and two from Strasburg Borough.

3. A map of Lancaster County and a map of Lancaster City, showing the number, grade and location of the school-houses, and the most important educational statistics.

4. Scholars' Work, consisting of fifteen framed maps by the pupils of the Marietta High School, Girls' High School of Lancaster, and High School of Strasburg Borough; six sets of Maps in portfolio by the pupils of three of the Lancaster schools, two of the West Hempfield Township schools, and the Strasburg High School; bound volumes of Manuscripts of Examinations, fourteen in number, by the pupils of the schools of Lancaster City, Strasburg, Marietta, and Mount Joy Boroughs, and Strasburg, West Lampeter, East Donegal, Mount Joy, West Hempfield, and Rapho Townships, in the common English Branches, Lan-

guage Lessons, Composition, Letter-writing, English Literature, U. S. History, Ancient History, Algebra, Geometry and Drawing.

5. One volume of Lancaster County Institute Reports.

LEBANON COUNTY.

1. One volume of Examination Papers of the Female High School, and of the First, Second, and Third Grade Female Grammar Schools of Lebanon Borough.

2. Two photographs of School Buildings, 12 by 14 inches, framed.

LEHIGH COUNTY.

1. From Macungie Borough, a framed view of the Graded School House, 3 feet 4 inches by 3 feet 10 inches, with abridged history of the schools on the margin.

2. A Book containing a complete history and full statistics of the schools, with specimens of the penmanship of every pupil, and a few maps and drawings.

MONTGOMERY COUNTY.

From Conshohocken: 1. Five Plans of School Buildings, in walnut frames.

2. One Copy of School Diploma in walnut frame.

From Ardmore: 3. Photograph of Ardmore Public School.

NORTHAMPTON COUNTY.

From Mount Bethel: 1. Four Drawings of Locomotives.

2. One Drawing of Fire Engine.

3. One Drawing of Pump.

4. Pen Drawing of George Washington.

NORTHUMBERLAND COUNTY.

Two large frames exhibiting front and side elevations, and interior views of Northumberland borough public school buildings.

PERRY COUNTY.

1. A History of Perry County, 1 volume, by Silas Wright. 1873.

2. A Map of Perry County, showing the townships, principal towns, mountains, streams, and iron ore deposits.

3. A Pamphlet containing Examination Questions, Specimens of Scholars' Work in Geography, Drawing, Spelling, and Arithmetic; Statistics in Manuscripts, and a Teachers' Programme.

SCHUYLKILL COUNTY.

From Tamaqua: 1. 150 Specimens of Free-hand Drawing, consisting of designs, copies, and maps, by the pupils of the High, Grammar, and Intermediate Schools.

2. Four bound Volumes of Manuscript Work, one from the High School, one from the Grammar Schools, one from the Intermediate, and one from the Primary.

SOMERSET COUNTY.

1. One bound volume of manuscripts marked, "Somerset County."

2. One Book of Manuscripts, marked "Somerset Borough."

SUSQUEHANNA COUNTY.

1. A Book containing Photograph of Great Bend Graded School, and Examination Papers of Higher Department of said school.

2. A package of Examination Papers from Common School No. 11, Harford District, and a package of Maps drawn by the Primary Pupils of said school.

3. A Pencil Drawing of School House No. 11, Harford District, and a Map of the School Grounds and vicinity.

4. A large Photograph, in frame, of Graded School, Susquehanna Depot, with teachers and children.

UNION COUNTY.

1. A School Map of the County.

2. Three bound Volumes of Scholars' Work from the public schools.

3. Portfolios of Maps and Drawings.

4. Photographs of School Houses.

WESTMORELAND COUNTY.

1. A framed picture of School House in E. Huntingdon Township.

2. Map Drawing by a pupil, Greensburg.

3. Diagram of Sentences and Parsing by a pupil of Greensburg.

CITY AND BOROUGH EXHIBITS.

ALLEGHENY CITY.

1. From the Primary Department: three Volumes of Manuscript: Printing, Penmanship, and Arithmetic.

2. From Intermediate Department: four Volumes, one each of Penmanship, Geography, Arithmetic and Map Drawing.

3. From Grammar Department: five Volumes of Manuscript; one each of Penmanship, Grammar, Arithmetic, Geography, and United States History.

4. From High School Department: three Volumes of Free-hand Drawing, and five Volumes of Manuscript, one each of Grammar, Physical Geography, Arithmetic, Algebra, and Natural Philosophy.

5. One large Photograph of the Fourth Ward School Building, and a duplicate drawing of the same: one large Photograph of the Ninth Ward School Building, one Map of North America, and one Map of the United States, all framed.

ALLENTOWN.

1. A Chart showing the history of Education in Allentown, the organization of the schools, their course of study, and the general educational agencies of the place.

2. A picture of the Fifth ward School House.

3. A Case of Primary Slates with scholars' work.

4. Eleven volumes of Scholars' Work, from Advanced Primary, Secondary, Grammar and High Schools.

ALTOONA.

1. A Photograph of First Ward School Building.

3. Manuscripts in Grammar.

CHESTER.

1. A volume of Examination Papers in the several branches.

2. One volume of Specimens of Writing.

3. One volume of Drawings.

COLUMBIA.

1. Four Photographs; two of School Buildings, one of Library, and one of Apparatus.

2. Three volumes of Scholars' Work.

CORRY.

One Photograph of School Building; one Pencil Sketch of School Building; Drawings from High, Grammar, and Primary Schools; twenty-five Slates of Primary School Work, and numerous volumes of Scholars' Work from the different grades of the schools.

EASTON.

1. Framed Matter, consisting of a Diagram of the Easton School System, with explanatory key; Photographs of School Buildings in First, Second, Third and Sixth Wards, with descriptions; High School Diploma, and Map of North America.

2. Forty-six Bound Volumes of Scholars' Work, viz: ten volumes from the High School; nine volumes from the Grammar Schools; twelve volumes from the Secondary Schools; two volumes from Grammar and Secondary Schools; twelve volumes of Drawings and Copy-Books from High, Grammar and Secondary Schools, and one volume of Certificates, Orders, &c.

3. Two Cases of twenty-five Slates each—Drawing, Printing, Writing, Arithmetic, &c., by Primary Schools.

ERIE.

1. Twelve volumes of Written Work by Pupils, viz.: four volumes from the High School; four volumes from Grammar and Intermediate Schools; and four volumes from the Primary Schools, numbers one to twelve.

2. Eight volumes of Selections by Pupils, viz.: one volume from Grammar Schools; two volumes from Intermediate; three volumes from Primary; and two volumes from German, numbers thirteen to twenty.

3. Twelve Drawings, viz.: four Designs (Silver Salver); four Designs (Book-cover); and four Copies, numbers twenty-one to twenty-three.

4. Three volumes of Drawings (bound), from classes of 1875 and 1876, numbers twenty-four to twenty-six.

5. Framed Maps of North Eastern States, Middle States, Europe and Asia, numbers twenty-seven to twenty-nine.

6. Bound Maps, three volumes, 1874, 1875 and 1876, numbers thirty to thirty-two.

7. Two volumes of Examination Papers, and four volumes of Exercises in German, French, Language, Mathematics, and General Information from High School, 1875, numbers thirty-three to thirty-seven.

8. Six volumes of Exercises from Grammar Schools, numbers two, six and seven, in 1874, 1875, and 1876, numbers thirty-eight to forty-three.

9. One volume of Musical Exercises, and one volume Erie School Reports, numbers forty-four to forty-five.

10. From Evening Drawing School; Oil Engine, Bevel Gear, Salinometer, Bevel Wheels, and Church (framed); and a Portfolio of Drawings of second class, numbers forty-six to fifty-one.

11. A Framed Drawing of Number Seven School Building, and a Portfolio of Photographs of numbers Two, Seven, Eight, Ten, Eleven, Twelve and Fifteen School Buildings, numbers fifty-two to fifty-three.

12. From Private Drawing School; four Crayon and Pencil Drawings (framed), and a Portfolio of Drawings, numbers fifty-four to fifty-eight.

13. Roll of a School in 1812, and Photograph of Teacher, number fifty-nine.

14. Solution of Problem 9×9, 81×81, 6561×6561, &c., to 9 multiplications, by a youth of 15, number 60^a–60^b.

15. A framed Pencil Drawing, number sixty-one.

16. Forms of Register and Class-Book used in Schools, number sixty-two.

HYDE PARK.

1. Six framed Drawings by Pupils of the High School, and four Portfolios of Drawings from the other schools.

2. Fourteen bound volumes of Scholars' Work, and two volumes of Teachers' Work.

MEADVILLE.

Three volumes of Scholars' Work in various branches, by whole classes of several grades.

NORRISTOWN.

1. Four photographs of the Norristown School Buildings; 2. Specimens of Pencil Drawing, and a Map of the United States.

2. Four volumes of Scholars' Work in High School; four volumes of Specimens of Penmanship; and three volumes of Map Drawing.

PHILADELPHIA.

EXHIBITED BY A COMMITTEE OF THE TEACHERS' INSTITUTE: 1. Drawings by the students of the Central High School.

2. Maps: Birds' Eye View of Philadelphia; Centennial Railway Guide Map of Philadelphia; Centennial International Exhibition Map; Smith's New Map of Philadelphia; Hunt's Improved Map of Philadelphia; Map of Location of Public Buildings; Centennial Map of the United States, and Bird's Eye View of the Centennial Exhibition Buildings.

3. Busts of Washington, Lincoln, Franklin, and Webster.

4. Drawings from the Central High School, North West Boys' Grammar School, Park Avenue Boys' Grammar School, G. G. Meade Boy's Grammar School, Northern Liberties Boys' Grammar School, Vaughan Boys' Grammar School, Hancock Boys' Grammar School, Keystone Girls' Grammar School; Crayon Drawing from Miss Schlater's School; School Work from the Keystone Girls' Grammar School; and Penmanship by Class G, Central High School, 76th Term.

FROM THIRTEENTH SCHOOL SECTION: 1. Wyoming Girls' Graded School, one Portfolio of Map Drawing and Lessons from Wilson's Drawing Books; and Examination Results in History, Mathematics, Original Composition, Definitions and Spelling.

2. Wyoming Boys' Graded School: Examination Results in Penmanship, and one Portfolio of Maps and Free-hand Drawing.

3. Wyoming Girls' Secondary Schools, Warner Boys' Secondary School, and John Q. Adams Boys' and Girls' Secondary Schools: Examination Results in Spelling, Geography, Notation, Arithmetic, Compound Tables, Theory of Arithmetic, and Writing.

4. Warner Boys' and Girls' Primary Schools, and John Q. Adams Boys' and Girls' Primary Schools: Examination Results in Spelling, Writing, Tables, and Dictation Exercises.

PITTSBURGH.

1. Glass Model of Pittsburgh Central High School.

2. Ten large volumes of Manuscript Work by pupils of all grades in the Public Schools of the city. These volumes are 26 by 22 inches in size, and contain on an average 300 pages each.

3. Photographs of all the principal Public School Buildings of the city.

4. Framed specimens of Scholars' Work in the several grades of the schools, covering about one thousand feet of wall surface.

5. Free-hand and Mechanical Drawings, from Day and Evening Schools.

6. A Chart giving a synopsis of the course of study pursued in the Public Schools of the city; and statistical information, showing the city's growth and her progress in public education.

POTTSVILLE.

1. Wall Chart showing the organization of the School Board and the grading of the schools.

2. Photographs of five of the School Buildings, exterior and interior views.

3. Eleven volumes of Scholars' Work, viz.: Two volumes from High School; five volumes from the Grammar Schools; three volumes from the Sub-Grammar Schools; and one volume from the Secondary Schools.

READING.

1. Fifteen volumes Scholars' Work.

2. Six Photographic Views of School Houses.

3. Four Astronomical Charts, made by pupils.

4. Drawings, viz.: Marine View, Country View, Winter View, Bird (pen drawing), Wreath of Roses (water color on white silk), Head (pen drawing).

SHENANDOAH.

1. One framed Chart, 12½x22 inches, representing the Departments, Grades, and Classes, and the Course of Instruction of the Public Schools of Shenandoah

2. Three framed Photographs, 12x14 inches, of the Public School Buildings in Centre, Lloyd and White Streets.

TITUSVILLE.

1. One volume of Selected Drawings.

2. Sixteen volumes of Examination Papers from the Third Year Primary to the Senior Class in the High School, inclusive.

WEST CHESTER.

One volume of specimens of Penmanship, from Primary to

High School; one volume Specimens of Spelling from Primary to First Grammar; one volume Industrial Drawing by Primary; one volume Specimens of Penmanship and Spelling by Colored; one Specimen of High School Diploma; one framed Picture in Colored Crayon and Pencil, from High School; twenty framed Pictures in Free-hand Drawing from High School; Fountain with a variety of Fish for same; and one volume Annual Reports of West Chester Public Schools from 1866 to 1876.

WILLIAMSPORT.

1. Eight volumes of Examination Manuscripts, viz.: two volumes from the High School; three volumes from the Senior Schools; two volumes from the Junior Schools; and one volume from the A Primary Schools.

2. One volume in Printing from B Primary Pupils; and one volume of Drawings from Junior School, Franklin Building.

8. One hundred and fifty Drawings by the pupils of the High, Senior and Junior Schools.

YORK.

1. Large framed Synopsis of Public School System.

2. Seven framed Drawings of School Buildings, from High School.

3. Twenty-three framed specimens of Free-hand Drawings and Maps, from High, Grammar and Secondary Schools.

4. Fourteen bound volumes of Scholars' Work by all grades of pupils in the Public Schools of York.

ACADEMIES AND SEMINARIES.

ALLENTOWN FEMALE COLLEGE.

1. A Picture of the College.

2. Water Color Paintings: Cranberry, Trailing Arbutus, Rose and Lily.

3. Crayon Sketches: The Modern Ruth, Child and Cat, Snow Scene.

BROOKE HALL FEMALE SEMINARY, MEDIA.

Two views of the Buildings.

CHAMBERSBURG ACADEMY.

Scholars' Work. One volume of work in Latin and Greek by whole class; and one volume of work in Arithmetic and English Grammar by whole class.

ERCILDOUN SEMINARY.

A view of the Buildings, one Oil Painting, and three specimens of Crayon Drawing.

FRIENDS' CENTRAL SCHOOL, PHILADELPHIA.

Scholars' Work, consisting of two specimens of Map Drawing, two specimens of Mathematical Drawing, and three Crayon Drawings.

HOLLIDAYSBURG FEMALE SEMINARY.

A view of Buildings and Grounds.

LANGTON'S ACADEMY, PHILADELPHIA.

1. Course of Study, Schedule of Lectures for the School Year 1875–76, Daily and Weekly Reports, Diploma of the Institution, and Descriptive Card for general distribution.

2. Drawing of the Building, View of East Class Room, View of Gymnasium, View of Lecture Room, and Plan of Rooms.

LEWISBURG UNIVERSITY FEMALE INSTITUTE.

1. View of the Buildings.

2. Two volumes of Examination Papers.

LINDEN HALL SEMINARY, LITIZ.

1. Large Photograph of Seminary Buildings, framed.

2. Three Drawings, in frames—two in crayon and one in pencil.

3. Morocco Case containing, in Manuscript, the Examination Questions of the Graduating Class of 1875.

MORAVIAN SEMINARY, BETHLEHEM.

1. Model of the present Buildings, founded 1749, re-organized 1785.

2. Frame (4 feet by 4 feet) containing Water Color Paintings by the pupils—1790 to 1805.

3. Framed Oil Painting, "Terai Falls," Italy (4 feet by 4 feet).

4. Frame containing Specimens of Needle, Tambour, Bead, Filagree, and other work, by pupils in the past and early part of the present century.

5. Specimens of Crayon Sketches and Oil Paintings, in seven frames, by pupils in the last five years.

NAZARETH HALL, NAZARETH.

1. Historical Sketch of Nazareth Hall, from its commencement in 1759. Pamphlet, 27 pages.

2. Photograph of the four principal Buildings.

OLEY ACADEMY, BERKS COUNTY.

A view of the Buildings.

PARKESBURG INSTITUTE, CHESTER COUNTY.

A view of the Buildings.

TREEMOUNT SEMINARY.

1. A view of the Buildings.

2. Plan of the Buildings (three floors).

WYOMING SEMINARY, LUZERNE COUNTY.

Two views of the Seminary Buildings.

COLLEGE EXHIBITS.

ALLEGHENY COLLEGE, CRAWFORD COUNTY.

1. Photographs as follows: Interior views of Chapel, Museum, and Prescott Cabinet; Exterior views of Bentley Hall, Ruter Hall and Culver Hall; a view of a group of Apparatus.

2. A landscape view of Grounds, Buildings, and surrounding streets; views of sections of Bentley and Ruter Halls; Historical sketch of Allegheny College.

3. Catalogue for the past year, containing, among other things, an Historical Sketch of the college and the President's Inaugural Address. Last Triennial Catalogue.

FRANKLIN AND MARSHALL COLLEGE, LANCASTER.

A Map of the Grounds, showing the location of the College Buildings, Preparatory Department, Halls of the Literary Societies, Harbaugh Hall, Professors' Houses, &c.

GIRARD COLLEGE, PHILADELPHIA.

The College exhibits a Portrait of Stephen Girard, painted by I. R. Lambdin, and a large number of Drawings made by the pupils of the College (shaded in colors, India ink and crayon), consisting of Perspective, Isometrical, Mechanical, and Free-hand Drawings, from casts, other models, and patterns; also some specimens of original designs of Ornamental Penmanship by the pupils.

Prof. Geo. J. Becker, of the College, exhibits specimen copies of Becker's System of Writing and Series of Ornamental Penmanship, and a piece of Ornamental Penmanship and Pen-Drawing executed by himself. The specimens are all framed and glazed, and occupy nearly 500 feet of wall surface.

HAVERFORD COLLEGE, HAVERFORD, PA.

A Case with contents as follows:

1–3. Fac-similes of the three oldest known manuscripts of the Greek Bible.

a. The Sinaitic Codex, written about A. D. 330. Like the other two codices, it was written in capital letters, with no space between the words, and almost without punctuation.

b. The Vatican Codex, written about A. D. 350, or perhaps as early as the Sinaitic.

c. The Alexandrian Codex, written about a century after the Sinaitic.

4. Photograph of the Convent on Mt. Sinai, where the Codex Sinaiticus (*a*) was found.

5. Wycliffe's English Testament, translated about A. D. 1380.

6. The Geneva Bible, 1560.

7. An exact fac-simile, even to the paper, of the only known copy of Tyndale's New Testament, printed at Worms, A. D. 1525, by Peter Schoeffer. Only 177 fac-similes were printed.

8. Manuscript letters of William Penn, one of which contains a postscript by George Fox, signed by his initials.

9. First Edition of Barclay's Apology, in Latin, published at

Amsterdam, A. D. 1676. Our first centennial of national independence is, therefore, the second centennial of the "Apology."

10. First English Edition of the Apology, or "Defence of the True Christian Divinity," by Robert Barclay, published A. D. 1678.

11. A volume of unpublished letters of the Barclay family.

12. Photograph of John Bright, and autograph letter of John Bright to Richard Cobden, dated "London, Mar. 1865."

VIEWS, ETC.

1. Map of the grounds of Haverford College, surveyed and drawn by the Class of '78.

2. Views and Plans of Barclay Hall, containing study-rooms and dormitories.

3. Plans and Sections of Barclay Hall, showing methods of heating and ventilation.

4. Lithographic view of College and lawn, printed and colored in Paris, about A. D. 1851.

5. Photograph of the College Buildings from the West.

6. " " Haverford Hall, south front.

7. " " " " east entrance.

8. " " Astronomical Observatory.

9. " " Alumni Hall and Library.

10. " " Interior of Library.

11. " " Friends' Meeting House.

12. " " Railroad Station.

13. " " Foot-Bridge near the College.

14 .Equatorial Telescope.

15. Transit Instruments.

MODELS.

1. Exact model of the ancient Corinthian Temple at Nismes, now called the "Maison Carrée."

2. Model of the Roman Amphitheater at Nismes.

3. Model of the ancient aqueduct, now called the "Pont du Gard."

DIAGRAMS.

Illustrating original researches in Cosmical and Molecular Inertia, by Prof. Pliny Earle Chase, LL. D.

A. Estimation of the mass and distance of the sun, by comparing the yearly and daily barometric influences of inertia.

B. Comparison of solar and lunar barometric disturbances.

C. Comparative frequency of rainfalls and auroras.

D. Typical curves of annual rainfall in different sections of the United States, showing gradual systematic changes of form and influences of locality, in the solar as well as in the lunar curves.

E. Curves of lunar-monthly rain-fall, deduced from forty-three years' observation at Philadelphia, and three years' morning observations at all the stations of the Signal Service Bureau.

F. Two sets of independent curves, representing lunar-monthly rain-fall at Lisbon, in average periods of 5⅓ years. One set represents curves for January, April, May, August, September, December, for sixteen years; the other, the total fall for three consecutive periods of 5⅓ years.

G. Storm-breeding regions, at normal intersections of prevailing winds, and opposites of solar rain-fall.

H. Synchronous anti-cyclonic snow-storms and cyclonic rains.

I. Gamuts of light and sound; accordance between the principal nodes of the solar spectrum and natural divisions of the diatonic scale.

K. Combined influence of elasticity and inertia, as shown by light, sound and planetary orbits.

L. Influence of principal masses in planetary pairs, on harmonic oscillations. Consequent prediction of a source of solar disturbance at .269 earth's mean distance, which prediction was confirmed by English sun-spot observations.

M. Conversion of linear into semi-circular oscillations, as shown by planetary positions relatively to Saturn, which is at the nebular centre of planetary inertia; and general equation of products of figurate powers of planetary masses.

N. Comparison of various astronomical and mechanical estimates of solar distance.

O. Connection of the November meteoric orbit with the intra-asteroidal planets, and with luminous undulations which are synchronous with the minimum limit of planetary revolution.

P. Evidence of orbital influences connecting the solar and stellar systems.

Q. New correlations of central forces which vary invisibly as the square of the distance.

Mathematicians and scientists will find these researches extremely interesting.

PUBLISHED WORKS OF THE FACULTY.

1. Astronomy, by John Gummere, A. M.

2. Surveying, by John Gummere, A. M.

3. Chemistry, by Daniel B. Smith, Principal of Haverford College.

4. Cicero on Immortality, by Thomas Chase, A. M., S. P. A. S.

5. Hellas, her Monuments and Scenery; by Thomas Chase, A. M., S. P. A S.

The following Latin classics, edited and annotated by Thomas Chase, viz:

1. The Æneid of Virgil.

2. The Works of Horace.

3. The First Six Books of Virgil, with a Vocabulary.

4. Livy.

5. Juvenal, together with a satire of Persius.

The following Latin classics, edited and annotated by George Stuart, A. M., viz:

1. Cæsar's Commentaries, with a Vocabulary.

2. Cicero's Select Orations, with a Vocabulary.

3. The Georgics of Virgil, with a Vocabulary.

4 Cornelius Nepos.

5. Sallust's Catiline and Jugurtha.

6. Tacitus' Germania and Agricola.

Scientific Works, by Henry Hartshorne, M. D., S. P. A. S.

1. Water versus Hydropathy; Or an Essay on Water, and Its True Relations to Medicine. Published 1847.

2. Prize Essay, On the Arterial Circulation: Its Physiology and Chief Pathological Relations. Published in Translations of American Medical Association, 1856.

3. Memoranda Medica; Or, Note-Book of Medical Principle. For the Use of Students. Published 1860.

4. A Monograph on Glycerin and its Uses. Published 1865.

5. Essentials of the Principles and Practice of Medicine. A Hand-Book for Students and Practitioners. Published 1867, 4th edition, 1874.

6. The same; Translated into Japanese and Published in Japan, 1875.

7. A Conspectus of the Medical Sciences: Comprising a Series of Manuals for Students. Published 1869; 2d edition, 1874.

8. A Hand-Book of Anatomy and Physiology; For the Use of Students. Published 1869; 2d edition, 1874.

9. The Family Adviser and Guide to the Medicine Chest: A Concise Hand-Book of Domestic Medicine. Published 1869.

Works of Pliny Earle Chase, LL.D., S. P. A. S.

1. The Elements of Arithmetic; Parts First and Second.
2. The Common School Arithmetic.
3. The Grammar School Arithmetic.
4. Arithmetic Practically Applied.
5. Sanscrit and English Analogues. Reprinted from the Proceedings of the American Philosophical Society.
6. Intellectual Symbolism: A Basis for Science. Reprinted from the Transactions of the American Philosophical Society.

LAFAYETTE COLLEGE, EASTON.

A COMPLETE EXHIBIT OF TEXT BOOKS USED IN THE VARIOUS DEPARTMENTS OF INSTRUCTION.

1. Text Books in Classical Department, Freshman, Sophomore, Junior and Senior Years.
2. Text Books in General Scientific Department, Freshman, Sophomore, Junior and Senior Years.
3. Text Books in Civil Engineering Department, Freshman, Sophomore, Junior and Senior years.
4. Text Books in Mining Engineering and Metallurgical Department, Freshman, Sophomore.
5. Text Books in Chemical Department, Freshman, Sophomore, Junior and Senior years.
6. Text Books in Post Graduate Department.
7. Text Books in Law Department, Junior and Senior years.

WORKS OF FACULTY AND ALUMNI.

8. Published Works of the Faculty and Alumni.

A COLLECTION OF INTERIOR VIEWS OF PARDEE HALL, DRAWN IN WATER COLORS.

Chemical Laboratories.

9. Laboratory for General Chemistry.
10. Assistants' Room.
11. Laboratory for Organic Analysis.

12. Lecture Room.
13. Laboratory for Quantitative Analysis.
14. Laboratory for Qualitative Analysis.
15. Laboratory for Original Research.
16. Assay Laboratory.
17. Technical Laboratory.
18. Laboratory for Volumetric Analysis.
19. Laboratory for Gas Analysis.
20. Professors' Laboratory.
21. Balance Room.
22. Laboratory for Blowpipe Analysis.
23. Sulphydric Room for Quantitative Analysis.
24. Sulphydric Room for Qualitative Analysis.
25. Professor's Office.
26. Interior View of the Reading Room in Eastonian Hall—drawn in Water Colors.

A SET OF TWENTY PHOTOGRAPHS SHOWING SPECIMEN CASES CONTAINING MODELS AND APPARATUS.

27. Case of Models and Apparatus in Applied Mechanics.
28. Case of Apparatus in Hydrostatics.
29. Case of Apparatus in Pneumatics.
30. Case of Apparatus in Acoustics.
31. Case of Models and Apparatus in Optics.
32. Case of Apparatus in Electricity.
33. Case of Models and Apparatus in Physics of Heat.
34. Case of Models and Apparatus in Steam Engine.
35. Case for Specimens in General Botany.
36. Case Containing the Flora of Pennsylvania (the most complete in existence).
37. Case for Drying Botanical Paper.
38. Models in Bridge Construction.
39. Surveying Instruments, comprising Compasses, Theodolites, Surveyors' Transits, Plane Table, Levels, Rods, Chains, etc., etc
40. Instruments for Mine Surveying.
41. Models in Exploitation.
42. Models in Ventilation.
43. Models in Separation of Ores.
44. Schroeder's Models in Descriptive Geometry.
45. Thread Models in Descriptive Geometry.

46. Models in Machine Drawing.
47. Models in Wood Joining.
48. Models in Architecture.
49. Models in Stone Cutting.
50. Models in Crystallography.
51. Apparatus in Assaying and Blowpiping.
52. Specimens of Chemical Apparatus.

SPECIMENS OF WALL CHARTS MADE AT LAFAYETTE COLLEGE AND USED IN THE VARIOUS DEPARTMENTS OF INSTRUCTION.

53. Specimens of three hundred and ninety-five Wall Charts in Physics.
54. Specimens of one hundred and ten Wall Charts in Botany.
55. Specimems of fifty-four Wall Charts in Geology.
56. Specimens of ninety-six Wall Charts in Zoology.
57. Specimens of 47 Wall Charts in Astronomy.
58. Specimens of three hundred Wall Charts in Mining Engineering.
59. Specimens of 75 Wall Charts in Metallurgy.
60. Specimens of two hundred and forty-five Wall Charts in Chemistry.

MODELS IN TOPOGRAPHY.

61. A Set of Silver Models (twenty-four in number) in Topographical Drawing.

SPECIMEN DRAWINGS IN CIVIL AND MINING ENGINEERING DEPARTMENTS.

62. Elementary Drawings, in portfolios, by the students in Freshman year.
63. Construction of Plane Problems, in portfolios, by the students in Freshman year.
64. Elementary Projections, in portfolios, by the students in Freshman year.
65. Geometrical Construction and Drawings from Models, in portfolios, by the students in Sophomore year.
66. Problems in Cabinet Projections and Drawings from Models, in portfolios, by the students in Sophomore year.
67. Elements of Pen Topography, in portfolios, by the students in Sophomore year.

68. Problems in Orthographic Projections, in portfolios, by the students in Sophomore year.

69. Problems in Shades and Shadows, in portfolios, by the students in Junior year.

70. Problems and Constructions from Models in Linear Perspective, in portfolios, by the students in Junior year.

71. Specimen of Maps in Pen Topography, from surveys by the students in Junior year.

72. Elements of Colored Topography, in portfolios, by the students in Junior year.

73. Specimen of Contour Maps, by the Students in Junior year.

74. Problems and Constructions from Models in Machine Drawing, in portfolios, by the students in Senior year.

75. Problems in Stone Cutting, in portfolios, by the students in the Senior year.

76. Cross Sections (specimen), from Railroad Survey, by the students in Senior year.

77. Notes in Railroad Survey, by the students in Senior year.

78. Specimen of Maps in Pen Topography, from actual Railroad Surveys made by the students, Senior year. (Drawn by S. B. Brown, of the Graduating Class.)

79. Specimen of Maps in Colored Topography, from actual Railroad Surveys made by the students, Senior year.

80. Contour Map of College Grounds, from Surveys made by the students. (Drawn by A. P. Berlin, of the Graduating Class.)

81. Topographical Map of the College Grounds, from Surveys made by the students. (Drawn by J. T. Fuller, of the Graduating Class.)

82. Specimen Drawing in Bridge Construction—Wrought Iron. By the students in Senior year.

83. Specimen Drawing in Bridge Construction—Cast Iron. By the students in Senior year.

84. Perspective View of Lafayette College Grounds and Buildings, from surveys by the students, and from plans and elevations of the buildings. The point of view is 1,000 feet in front, the altitude 500 feet, scale 1,250. Drawn by W. L. Plack, of the Senior Class—finished in sepia.

INSECTS, PLANTS AND MINERALS FROM THE COLLECTIONS OF THE NATURAL HISTORY SOCIETY OF LAFAYETTE COLLEGE.

85. Insects collected in the immediate vicinity of Easton, Pa., by the Natural History Society of Lafayette College.

86. Plants collected in the immediate vicinity of Easton, Pa., by the Natural History Society of Lafayette College.

87. Minerals collected in the immediate vicinity of Easton, Pa., by the Natural History Society of Lafayette College.

88. Journal of the Proceedings of the Chemical Society of Lafayette College, 1875–76.

89. Orations of the Graduating Class, 1876.

90. Graduating Theses in the Civil Engineering Department.

91. Graduating Theses in the Department of Mining Engineering and Metallurgy.

92. Bound volume of the Lafayette College Journal, 1875–6.

93. Bound volume of "Fowler Prize" Essays.

94. Bound volumes of Historical Matter, comprising addresses, reports, catalogues, etc., etc.

95. Working Schedules of Recitations and Lectures for the College Year 1875–6. Complete.

96. A Large Chart of the Departments of Study in Lafayette College.

97. Annual Catalogue of Lafayette College, 1875–6.

98. History of Lafayette College, by Prof. W. B. Owen.

99. Portfolio of College Blanks and Forms.

100. List of the present Members of the College Faculty. (33 in number.)

101. Wall Maps of Palestine and Syria, by Profs. Coleman and Osborn.

102. Maps of the Winds of the Globe, by the late Prof. J. H. Coffin.

103. Chart showing the Path of the great Meteoric Fire Ball of 1860. Computed by Prof. J. H. Coffin.

104. T-Square Protractor, invented by Prof. J. H. Coffin.

105. Drawing of an Anemograph invented by Prof. J. H. Coffin.

106. A Large Photograph of Lafayette College, giving a panoramic view of the buildings, grounds and surrounding scenery.

107. An Oil Painting of College Hill and surrounding scenery.

108. Photographs of College Buildings, Jenks Hall, (Natural Philosophy,) Astronomical Observatory, Philological Hall, South

College, East College, McKeen Hall, Students' Homes, (Blair Hall, Newkirk Hall, Martien Hall, Powel Hall,) Professors' Houses (eleven in number) upon the College Grounds.

109. Examination Papers in Greek, Latin, Anglo-Saxon, English and other Philological studies.

110. Report of the Proceedings at the Dedication of Pardee Hall, October 21, 1873.

111. Elevation and Floor Plans of Pardee Hall.

112. A Large View of Pardee Hall, in water colors,

LEBANON VALLEY COLLEGE, LEBANON COUNTY.

1. A Chart showing a view of the College Buildings, and the History, Course of Study, Government and Faculty of the Institution.

2. Photographs of the President and Faculty.

LEHIGH UNIVERSITY, SOUTH BETHLEHEM.

1. WORK OF STUDENTS WHO ATTENDED THE UNIVERSITY THE PAST YEAR: Elements of Industrial Drawing—eight plates selected from the work of the Freshman class.

Machine Drawing—Four pieces, finished in colors.

Mechanical Drawing—Three Line Drawings, Plan, Elevation and Section of a Coal Car, one piece shaded and tinted; 41st Street Bridge, Philadelphia.

Topographical Drawing: Three finished Maps of Surveys made by students, four Maps of Hydrographical Surveys made by students, Contour Map from data furnished by students.

Colored Topographical Drawing: Finished Map of Survey made by students.

Linear Perspective: Finished Drawing of a Groined Arch.

Specimen of finished Lettering.

Plans of Packer Hall, the principal building.

2. TOPOGRAPHICAL DRAWING OF THE BUILDINGS AND GROUNDS OF THE UNIVERSITY.

3. TWO PHOTOGRAPHS OF PACKER HALL.

4. BOOKS WRITTEN BY THE FACULTY.

President J. M. Leavitt: Two volumes of the American Church Review and five volumes of the International Review.

Prof. Henry Coppee: Elements of Logic, one volume, and Elements of Rhetoric, one volume.

Prof. W. H. Chandler: Five volumes of the American Chemist.
Prof. A. J. Du Bois: Graphical Statics, etc., three volumes.

LEWISBURG UNIVERSITY, UNION COUNTY.

1. Two volumes University Catalogue, complete.

2. One volume Examination Papers of the Junior and Senior Class.

3. One volume Examination Papers of the Freshman and Sophomore classes.

LINCOLN UNIVERSITY, CHESTER COUNTY.

1. Photographs of Buildings as follows: President's House, Cresson Hall, University Hall, Lincoln Hall, and three of the Professors' Houses.

2. Photographs of ten native Africans, taken upon entering, and again after two years of study at the University. The effects of culture thus shown are very striking and significant.

3. A Chart showing Schedule of Lectures and Recitations in the Collegiate Department.

4. Chart showing Schedule of Lectures and Recitations in the Theological Department.

5. Case containing copies of the text-books used in the University.

6. Chart giving a list of students in the Departments of Art and Theology of 1876.

7. Map of the grounds; a volume of Examination Papers; and a volume of Catalogues.

MUHLENBERG COLLEGE, ALLENTOWN.

1. A framed Plan of the Grounds of Muhlenberg College.

2. A Photographic View of the Eastern and Northern Sides of the Buildings, from a point inside of the grounds

3. A similar picture from a point outside of the grounds.

PENNSYLVANIA STATE COLLEGE, CENTRE COUNTY.

1. A Map of Pennsylvania State College and grounds, showing location of the College Buildings, Gymnasium, President's House, Linnæan Hall, Observatory, Preparatory Department, and Professors' Houses.

2. A Case of Seeds.

3. Two Cases of Insects.

4. One Set of Catalogues of the College.

UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA.

1. Photograph of the University Buildings.

2. Plans of the University Buildings.

3. Plat of the University Grounds.

4. Models made by Students from dimensions obtained from existing structures and reduced to a suitable scale.

a. The most conspicuous of these models, twelve feet long, is a fac-simile of one span of the carriage way of the "permanent bridge at Market Street," recently destroyed by fire. The measurements of all details were obtained directly from unconsumed parts of the wreck after its removal from the river, and the bills of material prepared and the parts gotten out and arranged by nine members of the Senior Class of '76, on a scale of three-fourths of an inch to a foot. The organization for this purpose consisted of one student as foreman, and eight special laborers. They were employed on the work during the winter afternoons and on Saturdays, when the weather could not permit field operations.

b. Bow-string Truss Bridge.

c. Linville Truss, span of a bridge.

d. French Roof Truss.

e. Queen Post Roof Truss.

5. A series of various kinds of scarfs and joints fitted by students in beams of uniform length and breadth, but having depths whose ratios varied as 1 : 2 : 3, the length of the scarfs bearing to each other the same ratios. These were broken by transverse strains applied at one-half, one-third and one-fourth the length of the beams, and the results tabulated for comparison and conclusions to be deduced by the students separately.

6. A large and carefully tabulated wall chart (8x9 feet), giving a synopsis of the course in Civil Engineering. This chart explains the relation and magnitude of this course.

7. A few of the large collection of Patent Office Models used to illustrate the construction and operation of the machines used in various engineering works, as dredges, excavators, dumping carts and wagons, rolling stock of railroads, forms of wheels and divided axles, lock nuts, joints, rails and chains, brakes and couplings, pavements, hydraulic apparatus, canal propulsion, dams, etc., etc.

8. Bureau for filing engineering drawings, papers, maps and periodicals. It is constructed of ash, and finished with nickel

plated trimmings, presenting a very fine appearance. Its drawers contain many drawings made by the students in Architecture and Civil and Dynamical Engineering.

9. A set of eight or ten pieces of hyperbolic, spiral, and bevel wheels, constructed by students from wood, shows the proficiency they have acquired in the arrangement of gearings and devices for changing the direction of motion.

10. Three plaster models of arches; one, being the eastern approach to the South Street Bridge over the Schuylkill at Philadelphia, consists of three conoidal arches; the second is a horizontal, full centre arch, terminating in vertical cylindrical faces, and the third is a horizontal cylinder intersected by an oblique plane. The voussoirs of all were prepared from paper templets cut by students from their own working drawings and moulded in gypsum.

11. A framed collection of drawings of Architectural, Civil and Mechanical Engineering subjects in inks and colors; a condensed and carefully arranged chart of conventional signs compiled from standard authorities.

12. A Series of Diagrams illustrating Lectures in Engineering.

13. Topographical Surveys and Topographical Relief Maps.

14. Collection of Wood and Glass Models lllustrating forms of Crystallization.

15. A full set of Text-Books used in the University.

16. A Catalogue of the University, a Catalogue of the Rogers' Engineering Library, and a copy of the University Magazine.

17. A fine selection of Specimens of Philosophical Apparatus from the University collection, as follows:

MECHANICS.—Endless Screw and Train of Wheel Work, Ratio 1:500; Apparatus for Liquefying Gases.

SOUND.—Helmholtz's Double Syren; Lyman's Apparatus for Wave Motion.

LIGHT.—Nicol Prism (50 mm.); Norremberg's Polariscope; Babinet's Photometer; Wheatstone's Polar Clock; Eaton's Direct Vision Spectroscope (glass prism); Quartz Lens; Absorption Cell for Liquids; Absorption Globe for Gases; Interference Prism; Bunsen's Apparatus for Reversing Sodium Flame; Prism for measuring Refractive Index of Liquids.

ELECTRICITY.—Grove's Battery of Ten Cells; Apparatus of Electric Rotation; De la Rive's Apparatus for Showing Rotation

of Electric Light in Vacuo; App's Inductive Coil; Saxtons' Magneto-electric Machine (1836); Electro-magnet; Ruhmkorff's Lamp for Spectrum Projections; Geissler's Tubes and Supports; Tisler & Spiller's Ozonometer; Wheatstone's Rheostat; Thomson's Low Resistance Galvanometer (R. 0.5 ohm.).

NOTE.—The above exhibit is made mainly by the Towne Scientific School of the University.

POLYTECHNIC COLLEGE, PHILADELPHIA.

1. A case containing 154 Species of American Birds, prepared and mounted by Thos. S. Gillin, Class of 1877.

2. Model of an Hydraulic Brake, George G. Fryer, Class of 1877.

3. Model and Drawings of a 2850-ton Ship, designed and made by J. Archie Taylor, of the Class of 1876.

4. Specimen volume of the Polytechnic Bulletin, a Monthly Record of Scientific and Industrial Progress, published by a committee of Undergraduates.

5. A model of an Old-time Passenger Railroad Car. Models of Bridges. Models of Machinery.

6. Specimens of Fossils from the Coal Measures. Other Fossils. Specimens of Coral, etc.

7. Twenty-five skeletons of Quadrupeds, Birds, Fishes, Reptiles, etc., prepared and mounted.

8. A set of Casts (10) of Fossil Animals.

WASHINGTON AND JEFFERSON COLLEGE.

1. Its Faculty and Course of Study, on a frame, 10 by 4 feet.

2. On a similar frame, a Table of its Students and their Occupations, and a list of one hundred of its more eminent Alumni.

3. A pretty complete set of the Text-books used in its instruction.

4. A partial set of the Books written by its Alumni.

5. A complete file of its catalogues, annual and triennial.

6. A complete set of pictures of all the Buildings ever used by it. This set of pictures is very significant, as it shows how a school in a log cabin grew into a college.

7. Photographs of about fifty of its present and former professors.

WESTMINSTER COLLEGE, LAWRENCE COUNTY.

1. Three bound volumes of Examination Papers.
2. One bound volume of Catalogues, complete set.
3. A picture of original College Building.
4. A picture of present College Building.
5. A plat of College Campus.
6. A Chart of Studies, showing the course of instruction in 1856, in 1872, and in 1876.

EXHIBITS OF NORMAL SCHOOLS.

GIRLS' NORMAL SCHOOL OF PHILADELPHIA.

1. Twenty-five Crayon Drawings, copied and enlarged.
2. Two Pastel Drawings, copied and enlarged.
3. One Design Sheet (original).
4. One Case containing Original Designs for Lace, Carpets, etc.; Specimens of Penmanship, Map Drawing, Original Compositions, Perspective Drawing, and Mathematical Figures.
5. Six Portfolios, one each of Original Designs, Specimens of Penmanship, Map Drawing, Original Compositions, Perspective Drawing, and Mathematical Figures.

STATE NORMAL SCHOOL, MILLERSVILLE.

1. A six feet Model of the Buildings.
2. A large descriptive Chart, giving the date of organization, growth and cost of the buildings, names of the Trustees and Faculty, course of study, and methods of professional training.
3. Four large Drawings, showing the internal arrangements of the buildings, and a number of Drawings by the Students.
4. Sixteen volumes of Examination Papers, embracing Rhetoric, Letter-writing, English Grammar, Constitution of the United States, Analytical Geometry and Calculus, and Mental Philosophy.
5. Twelve volumes of Theses selected from the classes of each year.

6. Thirty Theses bound in pamphlet form of the classes of 1874 and 1875.

7. Two bound volumes of Catalogues from the beginning of the school in 1855 until the present time; and two volumes of "The Normal Monthly," edited by the principal.

8. Copies of Wickersham's "School Economy" and "Methods of Instruction;" Brooks's "Outlines of Professional Training," "Mathematical Works," fourteen volumes; Westlake's "3000 Practice Words," and "How to Write Letters;" Lyte's "Book-keeping," and "Institute Glee Book;" and several volumes by students and graduates of the school.

9. Other Text Books used in the school, and an old work on Mathematics published in 1676.

10. Text-Books used in all the Normal Schools of the State.

STATE NORMAL SCHOOL, EDINBORO.

1. A Map of the grounds and surroundings.

2. Photographs of Buildings as follows: Academy Hall, Assembly Hall, Principal's Residence, Gentlemen's Hall, Ladies' Hall, Normal Hall, and a Partial View of the Front Yard.

KEYSTONE STATE NORMAL SCHOOL, KUTZTOWN.

1. A Picture of the Buildings, framed.
2. Several Drawings executed by students.
3. Catalogues from the beginning of the School.
4. Bound volumes of Examination Papers of classes.
5. Historical Chart.

STATE NORMAL SCHOOL, BLOOMSBURG.

1. Plat of Grounds and location of Buildings.
2. Historic Chart of the school from 1869 to 1876.
3. Twelve Drawings of Buildings, Halls, and Recitation Rooms.
4. Three Photographic views of Gymnastic Classes.
5. Four Oil Crayon Pictures, and one volume of Drawings selected from class work of term.
6. Class work of pupils of Model School and Preparatory Department, under direction of members of Senior Class, consisting of one bound volume of Manuscripts of Spelling and Composition; one volume of Maps of North America; one volume Maps of Europe; one volume Plans of Model School Building; one volume of Maps of the United States; one volume of Maps of Africa;

one volume of Maps of South America; one volume of Maps of Asia by A Division of Junior Class, and one by B Division.

7. Two volumes of Written Debates, and one volume of Rules for the Use of Capital Letters by the Seniors.

8. Seven volumes of Examination Manuscripts in the Common and Higher Branches.

9. One Motto, in fancy needle work.

STATE NORMAL SCHOOL, WEST CHESTER.

1. The Original Design of the Building, and a Photograph of the Present Structure.

2. A Plan of the Grounds, showing walks, drives and flower beds.

3. A Printed Chart, giving the course of study, statistics, and general description of the school.

4. Photographs of the Graduates of the classes of 1874 and 1875.

STATE NORMAL SCHOOL, SHIPPENSBURG.

A View of the Buildings; Specimens of Drawings.

STATE NORMAL SCHOOL, INDIANA.

A View of the Buildings.

SOLDIERS' ORPHAN SCHOOLS.

ANDERSONBURG SOLDIERS' ORPHAN SCHOOL.

INDUSTRIAL WORK.—*Girls' Work:* Boy's Suit (large), Boy's Suit (small), Pair Summer Pants, three Dress Suits for Misses, White Skirt, Pair of Drawers, Chemise, three Aprons, Pair of Stockings, Fine Shirt, Calico Shirt, Pair of Pillow Slips, three Chair Cushions, five Tidies, Toilet Set, Air Castle on Perfume Sachet, Pin Cushion, Sample of Button Holes, nine Handkerchiefs, and five Mottoes.

BRIDGEWATER SOLDIERS' ORPHAN SCHOOL.

SCHOLARS' WORK.—Three bound volumes of Examination Papers in the Branches taught in the School.

INDUSTRIAL WORK.—*Girls' Work:* Java Canvas Tidy (red), Java Canvas Tidy (blue), Bureau Set and Tidy, (four pieces), two Toilet Sets, (each seven pieces), two Pairs Hair Receivers, Air Castle, two Pairs Pulse Warmers, Shaving Case, two Pin Cushions, Toilet Set (five pieces), two Match Boxes, two Scrap Bags, Hair Pin Receiver, Needle Book, Letter Bag, Card Receiver, three Lamp Mats, Watch Case, Tidy, Pair of Slippers, Afghan, Gabrielle Dress, Kilted Skirt and Basque, Swiss Apron, Plaid Muslin Apron, two Percale Aprons, Boy's Shirt, Boy's Cloth Suit, four pieces Underwear, four specimens of Button Holes, two Mottoes, Stool Cover, and one Ottoman.

CHESTER SPRINGS SOLDIERS' ORPHAN SCHOOL.

VIEWS OF SCHOOL BUILDINGS.—One picture of the School Buildings in Pencil (framed), by a pupil.

SCHOLARS' WORK.—1. Three bound volumes of School Manuscript, numerous loose Drawings, and Copy-books.

2. Framed, one Map of Eastern and Western Hemispheres, one Map of Pennsylvania, one Engine, and one Motto.

INDUSTRIAL WORK.—*Work by Girls:* Flannel Dress, (plain); Light Poplin Dress (trimmed), Suit of Muslin Underclothing, samples of Button Holes on muslin, Sofa Pillow, five Tidies, two Toilet Sets for wash-stand, (three pieces each,) Zephyr Toilet Set for Bureau (three pieces), Scrap Box for Bureau, two Hair-Pin Cushions, two Match Receivers, two Burnt Match Receivers, Pin Cushion, Watch Case, two Card Receivers, Work Box, Perfume Castle, Wall Pocket, Fairy Basket, Book Marker, Bouquet of Wax Leaves with glass cover, Tatted Collar, and a number of samples of Tatting.

DAYTON SOLDIERS' ORPHAN SCHOOL, ARMSTRONG COUNTY.

VIEWS OF BUILDINGS, ETC.—1. A Drawing of the School Buildings. 2. A Chart giving an outline of the history of the School, with statistics, &c.

SCHOLARS' WORK.—1. A bound volume of Examination Manuscripts. 2. A book containing Specimens of Writing.

INDUSTRIAL WORK.—1. *Work by Girls:* Black Alpaca Dress, Calico Dress, three Chemises, two pairs of Drawers, Flannel Shirt, Muslin Shirt, Night Gown, Crocheted Scarf, Crocheted Tidy, Canvas Tidy, Small Sack, and three Gingham Aprons.

2. *Work by Boys:* Three pairs Calf Boots and four pairs Calf Shoes.

HARFORD SOLDIERS' ORPHAN SCHOOL.

INDUSTRIAL WORK.—*Work by Girls:* One Dress, Basque, and Overskirt, Skirt, Boy's Shirt, Chemise, Night Dress, pair of Drawers, White Apron, three Print Aprons, Gent's Collar and pair of Cuffs, three Pocket Handkerchiefs, pair of Lady's Cuffs, Boy's Suit, Pants and Jacket, White Zephyr Scarf, Zephyr Lamp Mat, Zephyr Vase Mat, Swiss Apron, pair of Zephyr Mittens; Note Pocket and Letter Pocket, silk on Perforated Cardboard; Ottoman —zephyr—on canvas; Watch-holder—zephyr—on canvas; Plush Pin Cushion, Motto on Cardboard, six Tidies of different kinds.

INDUSTRIAL SCHOOL, PHILADELPHIA.

Girls' Work: One Blue Poplin Dress, one pair Worked Slippers, one Bead Toilet Cushion, and one Shirt.

LINCOLN INSTITUTION, PHILADELPHIA.

VIEWS OF BUILDINGS, GROUNDS, ETC.—A photograph of the Lincoln Institution Building.

A large photograph of a Group of Lincoln Institution Boys.

SCHOLARS' WORK.—1. Three volumes of School Examination Papers in Arithmetic, Geography, Composition, Spelling, Penmanship, and Map Drawing. 2. Large Map of South America. 3. Sample of Composition. 4. Specimen of Scroll Painting and Lettering.

INDUSTRIAL WORK.—1. Galvanized Wire Flower Stand. 2. Lettered Sash Door. 3 Sample of Preparation of Tincture of Iron, and Sample of Oxide of Zinc. 4. Sample of Tooth Powder. 5. Model of a Cottage. 6. Model of a Low-down Grate and Mantel.

MANSFIELD SOLDIERS' ORPHAN SCHOOL.

SCHOLARS' WORK.—1. Three bound volumes of Manuscript Work. 2. Six framed Pictures—two spatter work, three card-board work, one crayon.

INDUSTRIAL WORK.—*Work by Girls:* Toilet set (three pieces), three embroidered Tidies, Crochet Tidy, Perforated Card Receiver, Paper Receiver, Card Receiver, three Handkerchiefs,

hemmed by hand, one hemstitched Handkerchief, Suit of Boy's Clothing, pair of Socks, pair of Hose, Gingham Dress, Infant's Dress, two Neck Ties, Infant's Knitted Shirt, and one Zephyr Opera Hood.

M'ALISTERVILLE SOLDIERS' ORPHAN SCHOOL.

INDUSTRIAL WORK.—*Work by Girls:* Case of Hair Work, Bead Cushion, Braided Cushion, Watch Receiver, Card Receiver, Hair-pin Receiver, Book Marker, Cake Doily, Handkerchief Case, Crocheted; Infant's Cap, Sack, Pair of Leggins, Pair of Pulse Warmers, Mittens, Zephyr Tidy and two Thread Tidies, one Pair Worked Slippers, two Mottoes in Frames, one Splasher for Wash Stand, Bureau Mat, Basin Mat, Ladies' Companion, Towel Rack, two Pairs Infant's Socks, White Bed Spread, two Zephyr Mats, three White and Blue Mats, thirteen Samples of Crocheting and Tatting, Suit of Girls' Underclothes, Sample of Button-holes, Blue Delaine Dress, Pair of Pants, Cloth Coat, White Shirt.

Work by Boys: One Pair of Shoes and one Pair of Boots

MERCER SOLDIERS' ORPHAN SCHOOL.

Scholars' Work: Two volumes of Manuscript Papers, one volume of Maps, and fifteen Pencil Drawings, framed.

INDUSTRIAL WORK.—*Work by Girls:* Four Tidies, two zephyr, one white cotton and one canvass; Scrap Bag, two Toilet Sets (each three pieces), Wreath of Hair Flowers (framed), Gray Dress Suit (girl's uniform), two Aprons (trimmed), one False Sheet and Pair of Pillow Shams, five Pieces of Underclothing, one False Sheet (chain stitch).

MT. JOY SOLDIERS' ORPHAN SCHOOL.

VIEWS OF BUILDINGS, ETC.—1. A Painting of the Mount Joy Soldiers' Orphan School on Banner, by a former Pupil; Banner made by the girls of the School. 2. A Painting of the rear of the School, Boys on Dress Parade, by the same.

Scholars' Work: 1. Four volumes of specimens of Free-hand Drawing, Chirography, Geometry, Landscapes, Island Views, &c., Drawings in Philosophy, Physiology, Geology, Astronomy, Map Drawing, Problems in Arithmetic and Algebra, Solutions in Mental Arithmetic, Parsing Sentences in Grammar, Diagramming,

and specimens of work done in all the branches taught in the schools of this class. 2. "Forest Reverie"—an Oil Painting by a former Pupil.

INDUSTRIAL WORK.—1. *Work by Girls:* Hair Wreath made of the hair of employees and scholars of the school; six Watch Fobs, two Tidies, two Pieces of Underwear, Centennial Apron, Gingham Apron, Samples of Crocheting, Cake Net, Eight Beaded Cushions, Morning Gown, very fine; several specimens of Embroidery, Dish Mats, drew Premium at State Fair; Needle Cushion, Beaded Book Marks, Ornamental Hanging Basket, Toilet Set, Working Dress, kind used at the school; White Dress, as worn by the girls during vacation; Linen Overdress, to be worn at home in vacation; Black Lustre Dress, received on leaving school; Plaid Dress, as worn in school; Gingham Dress, as used in school; Dark Plaid Dress, as used in school; numerous other small articles, voluntary contributions by the pupils.

2. *Work by Boys:* Walnut Pocket for wall ornament, cut from solid walnut with pen-knife, containing likeness of Prof. Kennedy, the Principal.

PHILLIPSBURG SOLDIERS' ORPHAN SCHOOL.

VIEWS OF BUILDINGS, ETC.—A Drawing of the School Building, 4 feet by 2½ feet.

A Portrait of Governor Hartranft by a pupil.

SCHOLARS' WORK.—1. *Drawings, Framed:* Six specimens of Pencil, Crayon and Water Colors; a Horse; sixty specimens of Drawing in Crayon and Water Colors—made expressly for the Centennial by Dr. and Mrs. Taylor's classes. 2. One large volume of Written Music, one large volume of Maps, three large volumes of other School Work.

INDUSTRIAL WORK.—1. *Work by Girls:* Eight dresses of different materials, three Garibaldi Waists, White Apron, one set Ruffled Underwear, three Chemises, chain-stitched yoke; three Night Dresses, chain-stitched yoke; one pair Ruffled Chemise Drawers, one pair White stockings, feather stitch; one Broadcloth Jacket (boy's), one pair Gray Cassimere Trowsers (uniform), one Flannel Shirt, one fine Scotch Chevoit Shirt, one pair Crotcheted Mittens, ten Chair Tidies, various styles and mate-

rials; five Lamp Mats, various styles, colors and materials; two Toilet Sets, Infant's Shirt (braided), Infant's Shirt (knit), one pair Baby Socks, one Baby Hood, one Baby Cap, one pair Darned Stockings, one Darned Napkin, one Knit Jacket, three Book Marks, two Court-plaster Cases, one Air Castle, Stamp Case, Visiting Card Case, three Muslin Baskets, two Wall Pockets, two Mottoes in Card Board, Watch Case (blue velvet), and one Doll (dressed).

2. *Work by Boys:* One Wall Pocket (black walnut), one Toy Wall Pocket (white walnut), one Knitting Box, four sets Taper Holders, one Lamp Shade, one pair Gray Knit Socks, one pair Boots, one Scarf, one pair Knit Mittens, and one pair Knit Gloves.

SOLDIERS' ORPHAN INSTITUTE.

VIEWS OF BUILDINGS, GROUNDS, ETC.—1. A large Photograph of the Soldiers' Orphan Institute. 2. A large Photograph of the Northern Home, associated with the Soldiers' Orphan Institute. 3. Pictures of Soldiers' Orphans. 4. Two large Charts of the Northern Home, showing Officers, Organization, etc. 5. Act of Legislature incorporating Northern Home.

PICTURES OF FOUNDERS AND PATRONS.—Portraits of John W. Claghorn, Esq., and Rev. E. W. Hutter.

INDUSTRIAL WORK.—*Work by Girls:* 1. The United States Flag floating over the Hall, Pin Cushions, Wall Pockets, Afghans, Toilet Sets, Table Covers, Slippers, Rose Tidies, Shirts, Bridal Baskets, Autumn Flowers, a variety of Dresses, Pillow Cases, a White Wax Cross, Mottoes, Aprons, Button-holes by thirty-one girls, Banners, Sofa Cushions, Satchels, four Ottomans, Foot Rests, Flags, etc.

2. *Work by Boys:* Two Tin Cups, Saw, Models of Machinery, Box of Cigars, Picture Frames, etc.

SCHOLARS' WORK. 1. *Drawings in Frames:* Bethany Mission Church, Map of North America, Wool Mill, Castle and Bridge, Castle, Boat House, Lock, Rural Scene, Snow Scene, Motto of Northern Home.

2. *Drawings in Portfolios, etc:* Homestead Wreath of Fruit,

and Flowers, Goats, Deer, enlarged; Grapes and Apples Good, for a Beginning, Horse, Map of Pennsylvania, Sheep and Goats, Map of Europe, Map of Iowa, Map of Cuba, Map of Southern States, Map of England, Map of Germany, Map of Northern part of North America, Map of Pennsylvania, New Jersey and Delaware, Map of Florida, Deer, Map of Western States, Cherries, Map of France, Map of Great Britain, several Maps of Africa, Map of Maine, Maps of Eastern States, Rabbits, Maps of South America, Maps of Great Britain, Maps of North America, Maps of Mexico, Maps of France, Spain and Portugal; Bird and Bough, Map of Holland and Belgium, Map of Texas, Map of Newfoundland, Map of Western States, Cottage, Map of Middle States, Map of the United States, Map of France and Spain, Map of the Territories, Flag of Liberia, Flag of Peru, Squirrel, Cat and Kitten, French Standard, Map of Ireland, Map of Austria, Map of Hawaian Islands, Map of British America, Map of Pennsylvania and New York, Map of Ireland, Flag of Siam, Charlie Ross, Rip Van Winkle, and a great number of specimens of sketching, and some paintings in Oil and Water Colors.

3. *Examination Papers in Bound Volumes:* Six volumes of Examination Papers by the Girls, including Papers on History and Constitution of the United States, Physiology, Botany, etc., Seven volumes of Examination Papers by the boys, including all the grades from the Primary upwards, and in Algebra, Physiology, Philosophy, Book-keeping, History of the United States, etc., as well as in all the Common School Branches. Also two volumes of Map Drawing in connection with the girls.

UNIONTOWN SOLDIERS' ORPHAN SCHOOL.

VIEWS OF BUILDINGS. 1. A Photograph of the School Buildings, from a Drawing. 2. A Drawing of the Uniontown Soldiers' Orphan School, by a Pupil.

SCHOLARS' WORK. 1. Specimens of Writing and Spelling from fourth, fifth, sixth and seventh grades. 2. Drawings: County Map of Pennsylvania, Map of the United States, Centennial Chart (original), Map of the World, Map of the Solar System, two Wreaths, Jumonville's Grave (from nature), Indian Chief, Braddock's Grave (from nature), and Wind-mill.

INDUSTRIAL WORK. 1. *Wearing Apparel:* Blue Delaine Dress, Pink Calico Dress, three Sets Girls' Under-garments, and a Pair of Girls' Fine Shoes (by a boy). 2. *Fancy Work:* Boy's Scarf, Toilet Set, two Handkerchief Cases, Moss Cushion, Pair of Mittens, and a Diamond Tidy.

WHITE HALL SOLDIERS' ORPHAN SCHOOL.

SCHOLARS' WORK. Five volumes of Manuscript of Examinations, one Primary Drawing Book, one Pupil's Map and Drawing Book, and twenty framed Crayon Drawings.

INDUSTRIAL WORK. Seven Animals worked on cloth, Dog, Horse, Elephant, two Pigs, two Mice, four Chair Cushions, ten Tidies, two Cigar Receivers, two Hair Receivers, two Hanging Baskets, one Suit Children's Under-clothes, two Small Dresses, one Hood, one Pair Slippers, one Rug, seven Watch Cases (bead worked), four Mottoes (silk worked), and one frame of Hair Flowers.

SOLDIERS' ORPHAN HOMES.

CHILDREN'S HOME, LANCASTER.

A Photograph of the School in a frame, made by Harry Houate, aged thirteen years.

CHURCH HOME FOR GIRLS, PHILADELPHIA.

1. A bound volume containing Specimens of Writing, Arithmetic, Geography, Spelling, Dictation and History.

2. A number of garments, such as dresses, aprons and underwear, showing the sewing of the pupils both on the machine and by hand ; and the washing and ironing done by one of the girls.

In addition to a good English education, the inmates are taught washing and ironing, cooking, baking bread, chamber work, and home work of all kinds.

EDUCATIONAL HOME, PHILADELPHIA.

1. A large Photograph of the Educational Home.

2. Two volumes School Examination Papers in the following

branches: Arithmetic, Geography, Composition, Spelling, Penmanship and Map Drawing.

LOYSVILLE ORPHAN HOME, PERRY COUNTY.

1. GIRLS' WORK: Boys' Suit, Sofa Tidy, Fine White Shirt, Fine Calico Shirt, two Girls' Dresses, White Tidy, Toilet Set, Match Receiver, six Pieces different kinds of Edging, Sofa Cushion Cover, Doll Suit, Doll Quilt, two Braided Yokes, seven Mottoes, three Rugs, and several specimens of Hemming.

2. BOYS' WORK: Fife, Gauge, Pair of Slippers, Spring Rat Trap, and numerous Toys.

ST. PAUL'S ORPHANS' HOME, BUTLER.

A large Picture of the Home Buildings and Grounds.

ST. VINCENT ORPHAN ASYLUM, TACONY.

1. EDUCATIONAL: Five Books of Examination Papers.

2. INDUSTRIAL: Copy Print of the School, large Bed Spread, three Cotton Tidies, Toilet Cushion, Pair Cotton Hose, Shirt, six Handkerchiefs, two Aprons, Skirt, Under-garments, and Wreath of Hair.

SUNDAY-SCHOOLS.

This exhibit was organized and arranged by M. J. Mitcheson, Esq., of Philadelphia.

SUNDAY-SCHOOL STATISTICS OF PENNSYLVANIA.—1. General Statistics. 2. Statistics of Protestant Episcopal Church. 3. Statistics of the Lutheran Church. 4. Statistics of the Presbyterian Church. 5. Statistics of the Baptist Church. 6. Statistics of the Friends' First-Day Schools.

SUNDAY-SCHOOL REQUISITES.—Catechisms, Question Books, Lesson Books, Teachers' Helps, Selections from Libraries, Children's Weekly and Monthly Newspapers, Tracts and other Literature pertaining to the Sunday-school work. The Protestant

Episcopal, Presbyterian, Lutheran and Baptist Churches are represented in this exhibit, as are the Friends, both Orthodox and Hicksite, and the Jewish Synagogues.

The American Sunday-school Union makes a large and interesting representative contribution from its publications.

FURNITURE.

A Semicircular Bench, with comfortable back, and a book box, of which the left end seat forms the lid, was kindly loaned by the Holy Trinity Memorial Schools. It is deemed the most compact, convenient and desirable form of arranging scholars.

A Windsor Chair, with one shelving arm, as a book-rest for the teacher. It may, but need not, contain a drawer beneath the seat.

A Library Book Case. The pigeon hole system is perhaps the latest idea. Separately numbered racks, or "pigeon-holes," receive correspondingly numbered books:—so that it can be seen at a glance whether a book of a desired number is in the Library or not. This case is erected at a convenient elevation for reaching all of the books, and with a broad shelf jutting out from below it, which the Librarian can use without stooping.

A Reversible Blackboard.

A Plain Blackboard on an Easel.

Taylor's Bulletin Board and Blocks.

Ray's Library System. Numbered checks or tags, of bent slips of tin, are put into all the books in the library in proper order. When the book is taken out for a scholar, the check is transferred to a portfolio or case prepared with a suitable receptacle for it on a card, opposite the scholar's name. When the book is returned to the Librarian, he restores the check to its place in the upper end of it, and the check of the new book taken out by the scholar is slipped into the portfolio or case as before. Where the school is large, a case with rows of prepared cards, bearing the name and number of each scholar, is more convenient than the portfolio.

Ray's Class and Library Cards afford a simple and concise method of recording each scholar's attendance, deportment, lesson and library book.

Ray's Transcript is designed to exhibit a condensed record of the work of the whole school compiled from the "Class and Library Card" of each class.

This system, designed and patented by Mr. William T. Ray, an experienced Sunday-school teacher and superintendent, is now used, it is estimated, in from two thousand five hundred to three thousand schools in this country. Almost every denomination represented, however, has furnished class and school records of its own.

MAPS.

Osborne's Map of Jerusalem.

Travels of St. Paul.

Lands of the Bible, Journeys of the Israelites, and Jerusalem.

Palestine, prepared for American Sunday-school Union.

Pennsylvania, showing the several periods when the Sunday-school work of the State was organized in its respective counties: with the population of each county.

Ancient Latin Map of the Holy Land and Adjacent Countries.

The Holy Land; prepared from recognized modern authorities.

A Landscape Map of Egypt, Sinaitic Peninsula and Palestine.

Adams' Illustrated Map of History; embracing Biblical, Ancient, Mediæval, and Modern History, from 4004 B. C. to A. D. 1876.

CHARTS, DIAGRAMS AND DECORATIONS.

Review Chart of International Sunday-school Lessons for second and third quarters of 1876.

Charts of the Lord's Prayer and Ten Commandments, on paper.

The same, stenciled on muslin.

Historical Tree of the Church.

Large Engraving, "Christ blessing little Children."

Architect's Crayon Drawing of Holy Trinity Memorial Sunday-schools and Chapel.

Bolton's Chart of Church Services for the Year.

Series of Sacred History Diagrams upon muslin; richly printed.

Illuminated Texts of Scripture, "Words of Comfort," "Words of Life," etc.

Illuminated Texts, Reward Cards, etc.

Set of richly printed Chromos, Crosses, etc.

Photographs of the American Sunday-school Union, and of the Church of the Holy Apostles.

Sunday-school Cards used in Prostestant Episcopal Church of Holy Apostles, George C. Thomas, Esq., Superintendent, viz.:

Certificate of Membership and punctual attendance; of Merit; and of being on the Roll of Honor; Reward Cards for Catechism; Scripture and Lessons; Class Card; General Attendance Record; Order of Services; Invitation to Services; Order of Exercises; Library Ticket; Library Books Wanted.

Cards used in Friends' Schools.

ILLUSTRATIVE INSTRUCTION.

Illuminated Lessons for the Blackboard.

Illustrations of the Harmony of the Scriptures; stenciled upon muslin, entitled, "*The Two Commandments*," and "*The Two Temptations.*" I. Illustrating the verbal harmony of the Gospels. II. Illustrating the general harmony of Scripture facts.

Analysis of the Gospel of St. John: being a condensed review of the International Series for the third quarter of 1875, showing respectively "*What Jesus Is*" and "*What Jesus Does*," the twelve links of two endless chains affording the figures.

The Beatitudes, in the form of an Arch; illustrating Christian character supported by God's promises, both resting upon one foundation—Christ Jesus.

Large Model of the façade of a Temple (in thirteen pieces); being a practical mode of exhibiting the figure used by St. Paul, to illustrate the building up of the believer as the "temple of God." 1 Cor. iii. 16. A fine specimen of object teaching, Rev. John Bolton, D. D. This model and the next above described are designed to be built up, block by block, and column by column, in presence of the school; accompanied by the appropriate texts for each.

PENNSYLVANIA INSTITUTION FOR THE INSTRUCTION OF THE BLIND.

1. The Manufacturing Department of the Institution is represented in the exhibit of the following articles made by the Blind Males: Hair Matress, two Pew Cushions, three Chair Cushions, nine yards Rag Carpet, Rocking Chair, Back and Seat Caned, seven Mats, twenty-four Cloth Brushes, twenty-eight Hat Brushes, twenty-nine Hair Brushes, eight Shoe Brushes, thirty Scrub Brushes, nine Corn Brooms, nine Whisks.

2. The Handiwork of the Females consists of Dress, handmade; four Undergarments by hand and machine; three Afghans,

Zephyr; three Infants' Skirts, three Hoods, three Sacques, three Pairs Socks, Pair Stockings, Shawl, two Tidies, cotton; knit Bed Spread, cotton; Cluster Bead Flowers, Tea Set, Furniture Set, two Bells, two Flags, two Baskets, three Hanging Baskets.

3. Of apparatus pertaining to Instruction we exhibit: Two styles Writing Board and Specimens of Writing, two sizes Pin-type Box and Specimens of Printing, three styles Arithmetic Slates with and without boxes, Record Slate used by Blind Teachers, three volumes Dictionary English Language raised print, Dissected Map of Europe, Map of Pennsylvania, Prescott's Writing Board, Braille Slate made by Wm. McMillan (blind), Arithmetic Slate made by Wm. McMillan (blind), N. Y. Print Slate, two kinds of Printing Apparatus (experimental), Piano Action Model made by C. Winkler (blind), Piano Action Model made by C. J. Faulke (blind), Photograph of Experimental Printing Machine, Photograph of Pennsylvania Institution for the Blind.

PUBLICATIONS, ETC., FOR THE BLIND.

N. B. Kneass, Jr., entirely blind, makes the following exhibit:

School Books: Primer, Second Class Reader, Speller, Pronouncer and Definer, Grammar, two volumes Arithmetic, Tables, Moneys, Weights and Measures.

Miscellaneous: Kneass' Philadelphia Magazine, nine volumes, 1867 to 1875 inclusive; Poetry of England, Poetry of America, Selections from Standard Authors, Merchant of Venice, First Play of Shakespeare, published for the Blind; Cricket on the Hearth, Dickens; Enoch Arden, Tennyson; Dora, Tennyson; Prisoner of Chillon, Byron; Triumph of Love, Aguillar; Declaration of Independence and Description of the Hall of Independence, by De Kalb Tarr; On the Morning of Christ's Nativity, Milton; Ode to the Blind, Otis Patten; Important Events of 1861.

Church Books: Catechism of the Protestant Episcopal Church, Catechism of the Methodist Episcopal Church, Catechism of the Roman Catholic Church, Prayer Book of the Roman Catholic Church.

Memoirs: Memorial of Dr. S. G. Howe, Memorial of Franklin Peale.

Miscellaneous Tracts, Alphabet Sheets, Multiplication Tables, etc., Music in Staff Notation, Beethoven's Sonnatine in G, first piece of Piano Music in Staff Notation for the Blind published in the U. S., Music in Literary Notation.

System: Original explanation of the System; The Blacksmith, by Jungmann; Fairy Dream Waltz, by Giese.

Sundry Games for use of the Blind: Chess, Checkers, Mill, Morris, Fox and Geese, Cat and Mice (original), Solitaire, etc.

PENNSYLVANIA INSTITUTION FOR FEEBLE-MINDED CHILDREN.

1. Nail Boards, Form Boards, Letter Boards, used to awaken attention, discipline the hand, and lead to reading.
2. Color Cups for teaching Color.
3. Wands, Dumb Bells, Clubs, used in Calisthenium.
4. Sewing Cards, Linear Drawing, Map Drawing, Illustrated Mottoes, Paper Plaiting, School Room Work.
5. Shoes, Brooms, Cane Seating, products of Workshops.
6. Books of Letters, Writing, etc.
7. Dumb Bell Charts, being an alphabet of signs, designating bodily movements, arranged to music, the invention of a feeble-minded mute.

NATIONAL SCHOOL OF ELOCUTION AND ORATORY.

LOCATED AT PHILADELPHIA.

1. A Chart, presenting Outlines of Principles and Order of Topics in the Course of Instruction.
2. Accompanying Charts, giving Methods and Exercises.

3. Historical Chart, giving condensed sketch of the Institution.

4. Diploma of the Institution.

5. Publications of the School, including numbers one, two, three and four of the Educational Annual; Best Things from Best Authors, Oration of Henry Ward Beecher on Oratory, delivered at the Third Annual Commencement of the School; Catalogues, etc.

SCHOOL OF DESIGN FOR WOMEN.

LOCATED AT PHILADELPHIA. MISS E. CROASDALE, PRINCIPAL.

DEPARTMENTS.

The School is organized into four distinct classes, viz.: Preparatory Course, Class A; Ornament, with its subdivisions, Class B; Landscape, with its subdivisions, Class C; Human Figure, with its subdivisions, Class D.

CLASS A.—*First Division*, requires the study of practical geometry for the use of instruments and surface measurements, object drawing, free-hand; line sketching, memory drawing, use of the brush in one color, drawing from plants in outline, flowers and fruit from the cast. *Second Division.*—Line shading from copies, perspective, ornament drawn and shaded from the cast, and painting in water colors and in oil from nature.

CLASS B.—*First Division.* Study and practice of the principles of ornamentation as applied to art manufactures, resulting in original designs suitable for some line of industry. *Second Division.* Drawing on wood, drawing on stone, and wood engraving. *Third Division.* China decorating. *Fourth Division.* Architecture.

CLASS C.—Perspective, individual trees, plants, etc., secondary grouping, color as applied to landscape, and sketching from nature.

CLASS D.—Figure subjects, perspective drawing from the antique, draperies in oil, composition, contrast and harmony.

The exhibits of the several classes are as follows:

DRAWINGS FROM CLASS A, FIRST DIVISION.—Free-hand outline from a copy, two free-hand outlines enlarged from copy, outline from a copy, two outlines of Roman vases, outline of wrought iron gates, outline from frieze ornament, pen and ink drawing, three outlines from nature, two geometrical drawings, three pencil drawings, ten India ink drawings, skeleton cube in light and shade, triangle in light and shade, square pyramid in light and shade, melon from the cast, gourd from the cast, leaf from the cast, plums from the cast, geranium leaf from the cast, bunch of grapes from the cast, group of solids shaded with the stump, group enlarged and shaded in crayon, five groups of objects, or still life in light and shade; three shaded drawings from nature in India-ink.

DRAWINGS FROM CLASS A, SECOND DIVISION.—Six ornaments in line shading from copies, group of horses' heads in crayon, four single heads, crayon study, six perspective problems, ornament shaded in crayon from the cast, capital shaded in crayon from the cast, rosette, fragment of scroll from the cast, architrave from the cast, panel from the cast, seven water colors from copy, twelve water colors from nature, shells with background in water colors, single shell with background, studies of shells without background, butterflies from nature, two plants from nature, cactus from nature, shell with background, group still life, flowers in oil from a copy, autumn leaves in oil from nature, flowers in oil, branch of apple-blossoms in oil from nature, fruit or still life in oil from nature, four groups of objects or still life in oil, Japan lily in oil from nature painted on wood, three diagrams showing the science of color.

DRAWINGS FROM CLASS B.—*Industrial:* Design where plant form has been used, design for oil cloth, practical; three designs for wall paper, design for stained glass, two original forms for china, one original form for silver, design for earthen mug and tankard, design for gas fixtures, practical; five designs for oil cloth, two designs for fresco border, design for prints, design for chandelier, bronze paneling enlarged, coat of arms, design for ingrain carpet, design for chintzes, picture drawn and colored from a carpet, badge Loyal Legion enlarged, wall paper borders, design in felt goods, painting on silk, two slate decorations, illumination original.

DRAWINGS FROM CLASS B, SECOND DIVISION—*Industrial:* Nine drawings on wood in case, five drawings on stone, lithography in case, eight wood engravings in frames.

DRAWINGS FROM CLASS B, THIRD DIVISION.—Seven specimens of China decorating in case.

DRAWINGS FROM CLASS B, FOURTH DIVISION.—*Architecture:* Cottage, side elevation of a church, stone church, example of Grecian order, front elevation of cottage, front and side elevation of cottage, capital shaded in India-ink (two), dwelling drawn in perspective.

DRAWINGS FROM CLASS C.—*Landscape:* Pencil shading from a copy, pencil shading from oil study, three landscapes in water colors, landscape in oil from a copy, two landscapes in oil from nature.

DRAWINGS FROM CLASS D.—*Figure:* Arm from a copy, Julia Spear; stumped drawing, Minnie Cheney; stumped drawing, Hattie Crandon; study of boy in line shading, Rebecca N. Trump; peasant boy, Florence Aldrich; study of feet from the cast (two), Jennie Middleton; anatomical arm, Mary W. Abbott; anatomical study Torso (two), Maggie Lindsay; antique crayon study, Rose Mitchell; portrait of a child in crayon, Mary Donaldson; portrait of Prof. James Hart, Mary W. Brower; portrait of James L. Claghorn, Etta M. Swain; portrait of a child, Rebecca W. Trump; portrait of Mrs. E. E. Hutter, Etta M. Swain; portrait of a child in oil, Beulah Kennard; portrait of General Grant, Rebecca N. Trump; portrait of Washington, E. Croasdale; portrait of Dr. J. P. Wickersham, Etta M. Swain; study in oil from life, Phebe Natt; drapery in oil, Rebecca N. Trump; study in monochrome from the antique, Sara C. Collins; enlarged study in crayon, Julia Richards; portrait of Lucretia Mott, Alice Darlington; portrait of Mr. Hall, Florence Aldrich; composition in oil, Rebecca N. Trump.

DRAWINGS IN FOLIOS—TWENTY-TWO SETS.—1. First Lessons in Pencil Drawing from copies. 2. First Lessons in Charcoal Sketching from the object. 3. Elementary Studies in Light and Shade, from single geometrical forms. 4. Studies in Light and Shade, from single vases. 5. Objects Grouped and shaded with Stump.

6 Geometrical or Instrumental Drawing. 7. Elementary Perspective. 8. Elementary Shading with a Brush in India-ink. 9. Flowers and Fruit from the cast, shaded with the stump. 10. Memory Drawing. 11. Outlines from Nature. 12. Original Ornament in outline. 13. Original forms of vases, glassware, etc., in outline. 14. Elementary Coloring as Applied to Design. 15. Practical Designs for Calicoes; the same in different colors. 16. Practical Designs for Wall Paper, Oil Cloths, etc. 17. Elementary Foliage. 18. Elementary Figure in Outline. 19. Elementary Figure, shaded from copies. 20. Fragments of Figure from the cast, in crayon. 21. Fragments of Figure from the cast, in oil. 22. Studies of Figure in Color, from copies and from life.

PEIRCE'S BUSINESS COLLEGE.

LOCATED AT PHILADELPHIA.

1. PENMANSHIP. (*A*) Seven sets of resolutions engrossed by order of the Philadelphia Board of Public Education at different times during the last five years, and borrowed from the owners for the purpose of showing the high order of talent possessed by the Penman of the College. (*B*) The improvement in writing of fourteen hundred (1400) pupils of the College, showing the success of the penman as a teacher. (*C*) A "Reward of Merit," engrossed by the penman, the like of which is given once a month to the pupil who makes the most improvement in writing in the month. (*D*) A large piece of "Specimens of Spencerian Penmanship," and a set of resolutions complimentary of the Principal, engrossed by the Penman, and a "Deceiving Picture" made with pen, brush and pencil, by the Professor of Drawing, each illustrating the power and ability of the executor. (*E*) A Piece of Ornamental Penmanship, so marked, with a bouquet in centre, drawn with the pen, which, with the drawings in the work done for the Board of Education, show the penman's skill in Pen-drawing.

2. BOOK-KEEPING. (*A*) A case of "Samples of Merchandise," used by the pupils of the College in the transaction of business

among themselves in the Actual Business Department, thus furnishing each pupil with an original and independent set of transactions for his books. (*B*) Samples of College Currency used in the payment of bills, together with copies of the various business papers used by the students.

3. Course of Instruction. (*A*) A small piece of lettering naming the subjects taught. (*B*) A diploma setting forth the subjects examined upon preparatory to graduation.

4. Objects of Institution and Classes who Patronize it. A large piece of Penmanship, setting forth the same in detail.

AMERICAN LITERARY UNION.

1. Collection of all the known Mosses of North America, mounted, arranged, and named, by Dr. Thomas P. James, of Boston.

2. Miscellaneous Collection of Autographs of Distinguished Americans.

3. Samples of School Furniture of the present day, including the Charter Oak desks, manufactured by the Excelsior School Furniture Manufacturing Company.

4. Writing Table of Mosaic work, composed of a collection of all the known American Woods, manufactured thirty years ago in Philadelphia, now the property of Mr. George Sturgis, of Philadelphia.

5. Collection of Ancient School Furniture and old School Books.

6. Photographs of the First Presiding Officers of the American Literary Union.

BOOK PUBLISHERS' EXHIBIT.

J. H. BUTLER & Co. 1. Mitchell's New Outline Maps, Large Series, Colored Politically.

2. Mitchell's New Outline Maps, Large Series, Colored Physically and Politically.

3. Mitchell's New Outline Maps, Small Series, Colored Politically.

4. Mitchell's New Outline Maps, Small Series, Colored Physically and Politically.

5. Mitchell's New Series of Geographies, Regular Edition, and Special Pennsylvania Edition.

6. Goodrich's Series of Pictorial Histories, New American Series of Readers, New American Series of Spellers, Oxford's Speakers, Sargent's Etymology, Bingham's Latin Series, Scholars' Companion, Smith's English Grammar, Butler's Pictorial History of the United States, etc.

CLAXTON, REMSEN & HAFFELFINGER. 1. An Essay Contributing to a Philosophy of Literature, Cicero de Officiis, de Senectute, de Amicitiae, Columbian Orator, and Choice Readings—Mrs. Diehl.

2. Brooks' Classics, nine volumes; Burleigh's New Series of School Readers, four numbers; Crooks & Schem's New Latin-English Dictionary, Kremer's Easy Lessons in Natural Science, Ruschenberger's First Books of Natural History, eight books in two volumes; Lincoln's Botany for Beginners, Walker's Elements of Grammar, and "Book-keeping for the Million," White's Elements of Theoretical and Descriptive Astronomy, and Thomson's Seasons.

3. Girard's French Series, five volumes; Liddell & Scott's Abridged Greek-English Lexicon, Smith's Key to the Iliad of Homer, Coppee's English Literature Considered as the Interpreter of English History, Labberton's Historical Series, three volumes; Labberton's Historical Chart, and The New York Series of Readers, etc., seven books.

COWPERTHWAIT & Co. 1. Warren's New Series of Geographies, four books; The Geographical Question Book, Apgar's New Geographical Drawing Book, and Map Drawing Paper.

2. Hagar's Mathematics, nine books; Colburn's Arithmetics, four books; and Eddy's Analytical Geometry, Plane.

3. Monroe's Readers and Spellers, eight books; Greene's Grammars, New Series, three books; Goodrich's Child's History of the United States, Berard's School History of the United States, Monroe's Physical and Vocal Training, Royse's Manual of American Literature, Berard's Manual of Spanish Art and Literature, Angell's Manual of French Literature, Cowdery's Elementary Moral Lessons, Knisely's Arithmetical Questions, and Leach's Complete Speller.

4. Specimen Maps from Warren's Series,and a "Diploma of Merit" from Vienna Exposition, 1873.

ELDREDGE & Co. 1. Brégy's French Series, 2 books; Chase & Stuart's Classics, 16 volumes; Hart's English Series, 14 volumes; Currier's Tables of Latin Suffixes; Lagarde's French Verb Book; Smith's Guide to French Conversation; and Lawrence's Model Speaker.

2. Singer's Arithmetics, 7 volumes; Crittenden's Commercial Arithmetic, and Key to same; Groesbeck's Book-keeping, College and School Edition, and Book-keeping Blanks; Wilson's Elementary Algebra and Key to same.

3. Westlake's 3000 Practice Words, Webb's Definer, Etymology and Historical Companion, 2 parts; Fetter's Philadelphia Speller; Mitchell's Manual of Elocution, Selections for Little Folks, Houston's Physical Geography, Longstreth's Young Student's Companion, Gregory's Christian Ethics, Martindale's Physiology, Natural Philosophy and U. S. History, and the Model School Diary, Monthly Report, Pocket Register and Grade Book and School Pen.

A. H. ENGLISH & Co. Osgood's American Series of Readers and Spellers, viz.: Primer, Primary Speller, Advanced Speller, and First, Second, Third, Fourth and Fifth Readers.

J. B. LIPPINCOTT & Co. 1. Chambers's Encyclopedia, 10 volumes; Allibone's Dictionary of Authors, 3 volumes; Lippincott's Biographical Dictionary, 1 volume, and Gazetteer, 1 volume; Cutter's Anatomical Charts, 9 in number; Cutter's Series on Anatomy, Physiology and Hygiene, 5 books; and one by Mrs. Cutter; Webster's Dictionaries, 6 books; Sanford's Series of Arithmetics, 4 books; Chauvenet's Higher Mathematics, 4 books; Playfair's Euclid; Johnson's Geometry, Hallowell's Geometrical Analysis, Bledsoe's Philosophy of Mathematics, Smith's Arithmetics, 2 books, and National Accountant; Emerson's Arithmetics, 3 books; and Wright's Book-keeping.

2. Wickersham's "School Economy" and "Methods of Instruction;" Walker's Science of Wealth, Sampson's Art Criticism, Atwater's Logic, Butler's Analogy, Blair's Rhetoric, Ross' Speaker and Western Orator.

3. Morton & Leed's Chemistry, Rand's Chemistry, Phelps' Natural Philosophy, 2 books; Phelps' Chemistry, 2 books; Phelps' Botany.

4. Schmitz' German Grammar, Leusden's Greek and Latin Testament, Gardner's Latin Lexicon, Leverett's Latin Lexicon, Pickering's Greek Lexicon, Grover's Greek Lexicon, Virgil Delphini, Horace Delphini, Hahn's Hebrew Bible, Haldeman's Latin Pronunciation, Lempriere's Classical Dictionary, Newman & Baretti's Spanish Dictionary, Gase's French Dictionary, and Le Grammaire en Achin.

6. Sypher's Pennsylvania, Sypher's New Jersey, Halleck's International Law, Derry's United States, Murray's Grammar, Sue's First Lessons in French, New Method in French, Exercises in French Syntax, Vicar of Wakefield and Key, Leverett's Juvenal, Walker's Dictionary, Voltaire's Charles XII., Lieber's Civil Liberty, Lieber's Political Ethics, 2 volumes; Hand book of Punctuation, Errors of Speech, Webster's Speller and Definer, Bonsall's Comly's Speller, Long's Grammar, and Jenkin's Lexicon.

SOWER, POTTS & Co. 1. Pelton's Outline Maps, Large Size six in number, with Key to Full Set.

2. Primers and Spellers, viz.: Washington Primer, Kelly's Primer, Raub's Primary Speller, and Raub's Normal Speller.

3. Brooks's Mathematical Series, sixteen volumes; Peterson's Familiar Science, Bouvier's Astronomy, Hillside's Geology, and Fairbanks' Book-Keeping.

4. Fewsmith's Grammars, Westlake's How to Write Letters, Lloyd's Literature for Little Folks, Roberts's History of the United States, Sheppard's First Book of the Constitution, and Text-Book of the Constitution, and Jarvis's Chiming Bells, in Paper and Board Cover.

PHILOSOPHICAL APPARATUS.

EXHIBIT OF WILLIAM Y. M'ALLISTER,

Manufacturing Optician, 728 Chestnut Street, Philadelphia.

BAROMETERS.—Fine Traveler's Aneroid Barometer, Fine Pocket Aneroid Barometer.

MATHEMATICAL INSTRUMENTS.—Cases of Fine Swiss Drawing Instruments, Cases of Fine German Silver Drawing Instruments, Cases of Fine Brass Drawing Instruments for Schools, Metallic Tape Measures, Pocket Compasses, Engineer's Level.

STEREOPTICONS.—1. McAllister's Patent Stereo-Panopticon: The most compact, powerful and portable Stereopticon made, and having Automatic Lime Movements. Silver Medal awarded by the Franklin Institute, Exhibition of 1874.

2. McAllister's Patent Artopticons. The Artopticon is the most powerful Oil Lantern made, and the only instrument of this kind in which the Ascension Scene can be shown.

3. Large Frame, containing 130 Plain Photographs on glass, of American and European Scenery.

4. Large Frame, containing 130 Colored Photographic Slides, illustrating the Sciences of Astronomy, Botany, Geology, Zoölogy, Entomology, Anatomy and Physiology, Natural History, Optics, Microscopy, and Art Studies of Egyptian and other Antiquities.

PNEUMATICS.—Air Pump, Magdeburg Hemispheres, Glass Receivers.

ELECTRICITY.—Plate Electrical Machine, 20 in.; Leyden Jars,

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MAGNETISM—Permanent Magnets, Magneto-Electric Machines, Revolving Bell Engine, Reciprocating Armature Engine.

ACOUSTICS.—Sonometer.

HEAT, ETC.—Steam Engine, Blood Circulator, Thermometers.

OPTICS.—Fine Microscopes, Spy Glasses, Astronomical Telescopes, India Rubber Nose Glasses, Magnifying Glasses, Coddington Lenses, Botanical Microscopes, Household Microscopes, Revolving Stereoscopes, Glass Hydrometers.

MECHANICS.—Set of Mechanical Powers: Pulleys, Wheel and Axle, Capstan, etc., Set of Collision Balls.

CENTRIFUGAL FORCES.—Centrifugal Railroad.

HYDROSTATICS AND HYDRAULICS.—Model of Archimedes Screw, Model of Barker's Mill, Model of Turbine Water Wheel, Hydrostatic Bellows and Paradox, Model of Water Wheels.

ASTRONOMY AND GLOBES.—Globe, Planispheres, Plain and Colored, Planetarium, Tellurian or Season Machine.

EXHIBIT OF N. H. EDGERTON, PHILADELPHIA.

1. Set of Models (Crystals in Glass), Dissected Cube (in box), Centrifugal Railway, Two Gyroscopes, Atwood's Machine, Universal Aeriometer, Hydraulic Press, Apparatus for Spouting Liquids, Model of Water Wheel, Model of Turbine Wheel, Hydraulic Ram, Air Pump, Fourteen Glass Receivers, Fountain in Vacuo.

2. Octave of Tuning Forks, Helmholtz's Resonator, Rubber Lens for Sound, Organ Tube, Tube for Manometric Flame, Apparatus to illustrate wave motion, Circular Organ Tube, Sonometer, Speaking Trumpet, Set of Chladni Plates, Box for Chladni Plates, two Bunsen Burners, Pyrometer, Thermo Multiplier, Pulse Glass, two Boutigny's apparatus for showing Spheroidal state of Liquids.

3. Electrical Machine, Di-Electric Machine, Electrical Battery of 4 Leyden Jars, Electrical Chime, Thompson's Electrometer, Jointed Discharger, Spiral Tube, Electrical Egg, Bichromate Battery (Grenet), Bichromate Battery (Grenet), Galvanometer, Foucault Electrical Light Apparatus, Dial Telegraph, Twelve Induction Coils, Eighteen Varieties Gaissler Tubes.

4. Spectrum Tubes, Vertical Semicircle, Chromatic Lens, Twenty-one Bisulphide of Carbon Prisms, Newton's and Brews-

ter's Disc, Spectrum Chart, Eaton's Student Spectroscope, Bunsen's Labratory Spectroscope, Mitscherlich Tubes, Set of Chemicals for Spectroscope, Stand for Plucker Tubes.

5. Photographic Lenses, ½, ⅓ and ¼ size; Photographic Lenses, Wide Angle; Table Polariscope, Specimen Salicine, Hippuric Acid, Plate Selenite, uniform thickness; Two Selenites, Five Crystals of Rutile, Specimen Sulphate Iron, Selenite Design, (Flowers,) Apparatus for showing effect of heat upon glass, Apparatus for showing effect of transverse steam upon glass; Apparatus to Show the Strain upon the structure of a block of glass, Specimen of Quartz, cut at right angles to the axis; 12-inch Globe on Pedestal, Rotator for Geissler Tubes, Set of Glass Breakers, Flat-Bottomed Flasks, Funnel, 4 oz. Graduate, Graduated Cylinder, 1000 Cubic Centimetres Graduated to 10.c.c., 4 Varieties Hydrometer Jars, Jar Graduated to Cubic Inches, Agate Mortar, Twelve Chemical Retorts, Specie Jars, Set of Botanical Charts.

5. Oxyhydroga Stereopticon, Pair Edgerton's Self-condensing Gas Cylinders, Oxyhydro Carbon Lantern, Educational Lantern, Adjusting Stand for Prisms, Microscope for Projection, Glass Goblet for inversion, Adjusting Stand, Oil Lantern, Frame of Plain and Colored Slides, Large Magic Lantern Slides, Marloy's Harp, Student's Microscope, Holman's Class Microscope, Student's Binocular Microscope, Economic Microscope.

SCHOOL FURNITURE.

KEYSTONE SCHOOL AND CHURCH FURNITURE CO., Successors to J. A. Bancroft & Co., 512 Arch Street, Philadelphia.

1. The "Triumph" Gothic School Desk, with Folding Seat, for Common Schools, 4 sizes in Maple and Walnut wood, with bronzed and black castings.

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I. NEWTON PEIRCE, No. 29 Strawberry street, Philadelphia.

1. Four Peirce's Patent Folding Combination School Desks of different sizes.

2. Two Reversible Seats, Patent Joints.

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1. Three Single School Desks, Primary, Secondary, and Grammar, with Folding Seats and Curved Backs.

EXCELSIOR SCHOOL FURNITURE MANUFACTURING COMPANY, 1003 Arch street, Philadelphia.

1. Charter Oak School Desks.

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1. Five different sizes of school desks and seats, gotten up in a new style called the "Royal Arch."

A MODEL

OF AN IMPROVED DISTRICT SCHOOL HOUSE AND GROUNDS.

This model was built for the Superintendent of Public Instruction by Mr. A. F. Old, of the Keystone School and Church Manufacturing Company. It is designed as a model for school boards in erecting country and village school houses. It is constructed on a scale of an inch to a foot, and will be found accurate and complete. Ventilation and heating are shown by models on the same scale as the house. Provision is made for clothes and wash rooms for the pupils, and for a retiring room for the teacher. A school house in all respects like the model, twenty-two by thirty-four feet, can be built for fifteen hundred dollars.

SCHOOL APPARATUS.

KEYSTONE SCHOOL AND CHURCH FURNITURE COMPANY, 512 Arch Street, Philadelphia.

1. A Celestial Globe, sixteen inches in diameter, and a Terrestrial Globe, same size, both with Horizon and Bronzed Stand.

2. A Tellurian Brass Tripod Stand; Call Bells, silver plated; Drawing Slates, etc., etc.

3. A Wall Alphabetical Chart in Blue and White, and a Wall Multiplication Chart in Blue and White.

4. Camp's Outline and Physical Map of the United States, on Rollers; and Outline and Physical Map of Hemispheres on Rollers. The water is shown in Blue, thus presenting great contrast with the land.

5. Johnston's Charts of Natural Science, colored and in map form, on Rollers.

6. A Wall Blackboard of Natural Slate. This is the largest Blackboard ever quarried, and is a novelty, as well as a specimen of indestructible Blackboard.

7. Slated Blackboard—prepared with the Keystone Liquid Slating for Walls, etc.

8. Keystone Blackboard Support—with improved Floor Supports.

EXCELSIOR SCHOOL FURNITURE MANUFACTURING COMPANY, Philadelphia.

1. A Black Board with Crayon Drawing.

2. Nichols' Primary Geographic Model, illustrating the definitions of land and water.

3. Nichols' Geographic Models of the United States and Territories.

C. E. POND, Private Instructor in Penmanship and Book-keeping, Philadelphia.

1. Business Practice Bureau for object lessons in book-keeping. It may be used to represent any Business House or Concern, and thus illustrate to the eye of the student the true principles of equal debit and credit. It contains an apartment for each account, with debit and credit rules, and is designed to combine the theory and practice in a peculiarly impressive manner.

2. Book-keepers' Reference Chart, containing full directions for accountants or students while opening, conducting or closing any "set of books."

3. Specimens of Penmanship and Off-hand Flourishing.

HUGH R. STEWART, Mercer, Pennsylvania.

Specimen of Combination Blackboard. This blackboard is constructed on a paper base, pasted on a plastered wall. Two coatings are used. The finishing is such as to permit the use of chalk, dustless crayon or steatite pencils.

J. L. SMITH, Map Publisher, 27 South Sixth Street, Philadelphia.

1. Walnut Map Case to hold from four to twenty large maps.

2. Spring Map Rollers.

3. Sundry Maps, suitable for schools, all arranged in Map Case,

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A. B. JUSTICE & Co., 14 N. 5th St., Philadelphia.

1. One Blackboard Slate, 3 feet by 5 feet, framed; made by David Williams & Co.

2. Three "wide frame" "Counting House" Slates—sizes 7 by 11, 8 by 12, 9 by 13. Six "wide frame" School Slates—sizes 5 by 7, 6 by 9, 6½ by 10, 7 by 11, 8 by 12, 9 by 13. The above, Cherry and Black Walnut frames; made by Franklin Ames.

3. Five School slates—Cherry frames, "extra" quality—sizes 5 by 7, 6 by 9, 6½ by 10, 7 by 11, 8 by 12—quality used in the Public Schools of Philadelphia; made by F. Ames.

4. Five "Bartholomew's" Rubber Corner Slates—sizes 5 by 7, 6 by 9, 6½ by 10, 7 by 11, 8 by 12; made for Potter, Ainsworth & Co., by Franklin Ames.

5. Slates made by G. S. Coffin. Five "Moulded Edge" School Slates, Cherry frames, sizes 5 by 7, 6 by 9, 6½ by 10, 7 by 11, 8 by 12—usual "Best" quality. Three "Excelsior" Slates, sizes 5 by 7, 6 by 9, 7 by 11, of quality same as used in Philadelphia Public Schools.

6. Slates made by Locke Slate Co. Eight School Slates, Walnut frames, sizes 4 by 6, 5 by 7, 6 by 9, 6½ by 10, 7 by 11, 8 by 12, 9 by 13, 9½ by 14. Seven "Counting House" Slates, Walnut frames, sizes 5 by 7, 6 by 9, 6½ by 10, 7 by 11, 8 by 12, 9 by 13, 9½ by 14. Three Log Slates, sizes 6 by 9, 7 by 11, 9 by 13.

7. Also exhibited by S. B. Archer—A. B. Justice & Co., agents, 14 N. 5th St., Philada. School Slate Rubbers, Blackboard do.

Miller Organ Company, Lebanon, Pa. Two Cabinet Organs of different sizes suitable for schools.

These organs are noted for their substantial construction, their fine finish, the variety of their musical effects, and the quickness of their articulation.

Perrot's Music Charts, 10 in number, all mounted on muslin, in map form: Nos. 1 and 2 are 43 by 56 inches; and 3 to 10 inclusive, are 56 by 72 inches. These charts are designed for teaching vocal music in public and private schools, and are fully explained in an accompanying book, entitled Companion to Perrot's Music Charts. A simple and comprehensive method

for teaching vocal music by persons not thoroughly conversant with musical science, whilst equally adapted for the use of musicians.

In connection with this system of charts is an instrument contrived by the author, to which he has given the name of Sonognome (sound indicator). This instrument, of the nature of a melodeon, is intended not only to relieve teachers from the continuous use of the voice in teaching solfeggio, but also to insure the greatest correctness as to the pitch of sounds.

Its portability is such, that one person can easily carry it from one room to another; so that one instrument will suffice for the use of a whole school.

Its power to sustain a continuous fulness of sound always in the proper pitch, makes it a sure guide to the most correct intonation.

In one word it combines many requisites, making it most valuable for teaching in schools, etc.

SIBOLE & STELLWAGEN, 727 Sansom Street, Philadelphia. "The Reader's Ready Rest." This is a portable reading and writing desk, and can be easily fastened to a chair, desk, sofa, table, garden seat, bed-rail, or ship's berth, and is suitable for books of both large and small size. A stand is made to accompany it if desired.

ROBERT RIDDLE, 1214 Hancock Street, Philadelphia.

1. Working models of skeleton Groins, Niches, Hand-rails, and Circular Work of unequal curvature.

2. Models in card-board, cut and made to fold by means of a hinge, thus showing the actual projections from a flat surface of various geometric construction in Carpentry, Joinery, Masonry, etc., etc.

The exhibitor claims that these works are produced by an original combination of a few geometrical lines, which makes the Carpenter, Joiner, and Stair-builder's art a perfect science.

ASTRONOMICAL APPARATUS.

JOHN DAVIS, Allegheny City, Pa., Inventor, Patentee and Exhibitor.

PLAN-E-TEL-LES.—This instrument, *which is the only one of the kind in existence*, is composed of two parts, viz.: a metallic machine which operates with a cog-gear, and a chart which contains the abbreviations of the technicalities of the Astronomy of the Solar System. When the wheel-work is put in motion, as it can be by a crank spring or weight, it represents the rotation of the Sun on his axis, the relative annual motions of the eight primary planets, also their relative diurnal motions, and the various motions of all the satellites around the Sun, around their primaries and on their axes, and illustrates the succession of their days and nights, the inclination of their axes to the planes of their orbits, the change of their seasons, the change of the Sun's declination in relation to each, and his rising and setting on each ; the different lengths of their days and nights, the difference in the length of their seasons, their conjunctions, and the phases of Mercury and Venus, the retrogression of the Moon's nodes, and the length of lunar days and nights, the solar and lunar eclipses, and the changes, phases, fulling and eclipses of all the satellites. No mechanical device that has ever been brought before the public, presents such an ocular demonstration of the Planetary system in motion, and expresses its phenomena with such precision and accuracy as the Planetelles ; and, as it is portable, is not liable to get out of order and occupies but little space, as it works vertically, it commends itself to the use of educators in seminaries, academies and colleges, places which it fills as an illustrator of science, with greater fidelity in many respects than the living instructor.

HELIO-TEL-LUS.—This instrument is composed of two parts, viz.: a metallic machine which operates with cog-gear, and a chart which contains the abbreviations of the technicalities of the Astronomy of the Earth and Moon, and two inferior planets. When the wheel-work is put in motion, as it can be by a crank spring or weight, it represents the rotation of the Sun on his axis, the

relative yearly motions of Mercury, Venus and the Earth, also their relative daily motions, and the motions of the Moon around the Earth, around the Sun and on her axis. It shows Venus as the morning and evening star, the inclination of the axes of the Earth and Venus to the planes of their orbits, and illustrates the respective widths of their different zones, the succession and duration of their different seasons, the different lengths of their days and nights, the declination of the Sun in relation to each, and his rising and setting on each, the superior and inferior conjunctions of Mercury and Venus, also the solar and lunar eclipses, the length of lunar days and nights, the retrogression of the Moon's nodes, and the changes, phases and fulling of the Moon. This instrument for the purpose of illustrating a portion of the planetary system and the phenomena resulting therefrom is invaluable; and as it can be carried in the hand and occupies but little space, economizes the time and expense of the pupil, and diminishes the labor of the teacher, it is especially adapted to the use of families and every grade of schools in which the elements of Astronomy or Geography are taught.

LUNA-TEL-LUS, No. 1.—This instrument is composed of two parts, viz.: a metallic machine which operates with cog-gear, and a chart which contains the abbreviations of the technicalities of the astronomy of the Earth and Moon. When the wheel-work is put in motion, as it can be by a crank spring or weight, it illustrates the astronomical phenomena of the Sun, Earth and Moon in their natural order, with the geography of the Earth in its proper relation to them. The Sun is made to turn on his axis, the Earth revolves at her proper inclination on her axis and around the Sun, producing not only the change of seasons and the vicissitudes of day and night, but also their natural increase and decrease in length. The Moon revolves around the Sun, on her axis, and around the Earth, producing the alternation of her days and nights, her changes, phases, and fulling, and also, by her retrograding at every revolution, the interesting phenomena of solar and lunar eclipses. And as the natural division of the surface of the Earth and the political divisions of every country are marked on the body that is employed to represent the Earth, the geographical and astronomical relations of every locality, at any particular period during the year, are clearly exhibited to the eye.

LUNA-TEL-LUS, No. 2—Is similar to Lunatellus, No. 1, in its construction and movements, and differs from it only in size and price.

HENRY WHITALL, 512 Arch St., Philadelphia.

1. Sixteen Movable Planispheres of the Heavens, as seen every minute every day. Number one has the constellations painted like the Celestial Globe. Number two has white stars on a black ground. The two make a complete set and are accompanied with ninety-nine rules of explanations. Number six is photographed on Glass for the Stereopticon, in mahogany frames with brass cog-wheels, and can be moved so as to show the sky any minute any day. It contains pictures of the constellations and names of the stars. Number seven is the same as number six, with all left off that can be spared, to look natural like the clear sky. It has the stars with Greek letters by them, and shows the boundaries of the constellations so small as not to be conspicuous.

2. Bartlett's Celestial Hemisphere of the Heavens from both Poles to the Equator.

3. Davis' Luna-tel-lus, which shows the true motions of the Sun, Earth, and Moon.

4. Davis' Helio-tel-lus, which shows the motions of Mercury, Venus, the Earth, and the Moon.

5. Bryant's Celestial Indicator, showing the Sun in the centre with the Primary Planets around it in order, bound around by the Zodiac.

6. Long's Patent Tellurian, adopted by the Boards of Education of New York and Brooklyn.

JOHN DEVLIN, 1320 N. 23d St., Philada.

The Automatic Indicator of the Meridian time, Latitude of the locality, etc. It gives the Ecliptic Limits of the Sun and Moon, and is a true measure of declination. It is valuable in the school room for teaching Astronomy.

MISCELLANEOUS ARTICLES—

1. Dr. Whitner's Music Expositor, including Musical Dictionary and Demonstrator.

2. A complete set of Guyot's Maps, used largely in Pennsylvania Schools.

3. A Chinese Grammar by Charles Ruby, born in Lehigh county, Pa., and now President of the International Association of Professors, Paris, France.

SCHOOL ORNAMENTATION.

This department is intended to represent the decorations appropriate for the school room.

It contains: A fountain with fish of different kinds, twining vines, hanging baskets, flower-pots, statues, statuettes, Rogers' groups, mottoes, vases of flowers, and a collection of beautiful engravings.

APPENDIX.

OUTLINE OF THE PENNSYLVANIA SYSTEM OF PUBLIC INSTRUCTION.

GENERAL STATISTICS.

Extent of Territory—square miles	46,000
Population in 1870	3,521,791
Assessed value of Property in 1874	$1,760,765,415
Real value	$3,500,000,000
Product of Coal in 1874—tons	36,547,615
Product of Pig-iron in 1873—tons	1,401,497
Product of Oil from 1859 to 1875—barrels	67,700,000
Annual value of Products of Mines	$76,000,000
Annual value of Manufactured Products	$712,000,000
Annual value of Farm Products	$183,946,027
Land under tillage—acres	13,000,000

EDUCATIONAL STATISTICS.

Number of persons in the State in 1870 between the ages of five and eighteen	1,076,000
Estimated number in 1876 between six and twenty-one (the school age)	1,200,000
Number of Pupils enrolled in the Public Schools in 1875	890,073
Average number	551,848
Estimated number in other than Public Schools	60,000
Number of Schools in 1875	17,092
Number of Graded Schools in 1875	5,625
Number of School Directors in 1875	13,825
Number of Superintendents in 1875	89
Number of Teachers in 1875	19,880
Average salaries of Male Teachers in 1875	$41 07
Average salaries of Female Teachers in 1875	$34 09
Average length of School Term—months, nearly	7
Average cost of tuition per month for each pupil	$00 92

Cost of tuition in 1875	$4,476,875 52
Cost of buildings, etc., in 1875	2,059,464 83
Cost of fuel and contingencies in 1875	2,448,315 78
Other appropriations and expenses in 1875	272,411 10
Cost of Soldiers' Orphan Schools, paid directly by the State in 1875	423,693 76
Total expenditures for school purposes in 1875	9,950,760 99
State appropriations to common schools	1,000,000 00
Amount raised by local taxes levied for school purposes	8,131,980 45
Value of school property in 1875	24,260,787 00

GROWTH OF THE SYSTEM.

The figures below show the growth of the Public School system in the past ten years, from 1865 to 1875.

	1865.	1875.
Number of graded schools	1,743	5,625
Number of superintendents	65	89
Average salaries of male teachers	$31 82	$41 07
Average salaries of female teachers	$24 21	$34 09
Cost of tuition	$2,515,528 63	$4,746,875 52
Cost of school houses	$465,088 08	$2,059,465 83
Total cost	$3,614,238 55	$9,363,927 07
Number of teachers attending County Institutes	2,755	13,863
Number of Normal Schools	3	9

FIELD OF ADMINISTRATION.

1. *School Districts.*—Every township, borough and city in the State of Pennsylvania constitutes a school district. There are in all 2,100 such districts. The great cities of Philadelphia and Pittsburgh each constitutes but one school district, and here and there in the country there is a district with a single school. The average number of schools in a district is a little over eight; in the rural districts it is about six.

The affairs of school districts are in the main managed by boards of school directors, composed of citizens elected by the people. In country districts these boards consist of six persons, two of whom are elected annually. Their term of office is three years.

In cities and boroughs these boards, in most cases, are larger, being composed generally of three persons from each ward. Philadelphia, Pittsburgh and Allentown have a local board in each ward, and in addition a central board.

In the hands of these boards the laws of Pennsylvania place the most vital interests of public education. They select the sites for school houses and erect them; provide furniture, apparatus and text-books; fix courses of study and the length of school terms; employ the teachers and make contracts for their salaries; levy and collect local taxes; receive the State appropriations and disburse the money.

These powers are exercised by school boards almost at will. No outside authority, no government official, has a right to interfere with the large discretion granted them.

As a consequence of this localization of power in the management of school affairs—the character of the school-houses and their equipment; the qualifications and salaries of teachers; the length of school terms and the wisdom of courses of study—all—are an *exact measure of the people's interest in education, and their ability to manage for themselves a system of public instruction.*

Still, there are some limitations to the powers of school boards which should be mentioned. Among these are the following: they must provide a sufficient number of schools to accommodate all the children of proper age in their respective districts, and keep the schools open at least five months in the year; they must have certain branches of study taught; they must employ no teacher without a valid certificate; they must permit the proper superintendent to direct the teachers in methods of instruction and discipline; they must publish their financial accounts, and make an annual report to the Department of Public Instruction. The penalty for a violation of any of these provisions is the forfeiture of the money appropriated by the State to the district, or dismissal from office.

Any board of directors may appoint a district superintendent, to visit and inspect the schools. There are many such officers.

2. *Counties.*—Once in three years the school directors of each county assemble in convention for the purpose of electing a county superintendent of schools and fixing his salary. No one is eligible to this office unless a teacher in possession of certain evidence showing that he has proper qualifications for the place. These officers

are commissioned, if no valid objection is made before him to its being done, by the Superintendent of Public Instruction, and are subject to removal by him for cause. They also receive their salaries from the State through him. Their duties are to examine and certificate teachers, visit schools and give instruction in methods of teaching and governing; to hold teachers' institutes; to give advice to school directors; to manage the general interests of education in their respective counties; and to make reports monthly and yearly, to the Department of Public Instruction.

There are sixty-five such officers now in commission.

Under a special law cities or boroughs of over 7,000 inhabitants can elect superintendents in the same way as county superintendents are elected. These officers are commissioned like county superintendents; they must have like qualifications, and perform like duties.

There are now in office twenty-three city and borough superintendents. The average salary paid the county superintendents is a little less than $1,200 per annum, and that paid city and borough superintendents something over $1,500 per annum.

3. *State Department of Public Instruction.*—The office of the Department of Public Instruction is in the Capitol Building at Harrisburg. The Superintendent is appointed by the Governor, but the appointment must be confirmed by a vote of two-thirds of all the members of the Senate.

He holds his office for four years, and at present his salary is $3,750 and traveling expenses. He is aided by two deputies, one chief clerk, two inspectors of Orphan Schools, and five other officers.

The Superintendent of Public Instruction, among others, is entrusted with the following powers:

1. To pay by warrant on the State Treasurer all moneys appropriated to public schools, normal schools and for salaries of superintendents.

2. To withhold the money appropriated by the State from any district whose board of directors fails to report annually under oath its financial condition, that its teachers hold valid certificates, and that its schools have been kept open in all respects according to law.

3. To require monthly and annual reports of their work from all superintendents of schools, and to remove any county super-

intendent for neglect of duty, incompetency, or immorality, and appoint another in his stead, until the next triennial convention of directors.

4. To exercise a voice in the granting of all the higher grades of teachers' certificates.

5. To appoint State Trustees for Normal Schools, and boards to examine their graduating classes; and to approve their courses of study, by-laws and regulations, and the prices charged students for boarding, etc.

6. To require reports from Normal Schools and all Colleges, Academies and Seminaries that have received aid from the State, or been incorporated under its laws.

7. To make contracts on the part of the State for the admission of all Soldiers' Orphans into proper schools or homes, and to provide and pay for their maintenance and instruction. He has at the present time under his supervision about 3,000 of these orphan children.

8. To expend the funds intrusted to him for the purpose, $7,000 in 1876, in providing instruction at the State Normal Schools for the girls leaving the Soldiers' Orphan Schools at sixteen years of age, best fitted to make good teachers. Sixty-five of these orphan girls are now in the Normal Schools, all their expenses being paid by the State; and a large number, having been prepared for the work in this way, are engaged in teaching public schools.

9. To decide without appeal controversies or disputed points among district school officers, and give advice concerning the meaning of the school law, and explanations as to the management of schools, to all that apply to him for that purpose.

PROFESSIONAL OPPORTUNITIES FOR TEACHERS.

Normal Schools.—The city of Philadelphia has a well appointed Normal School for Girls, established in 1848. It is connected with the public school system of the city.

Under a State law passed in 1857, there are nine State Normal Schools in successful operation, with an attendance of nearly 4,000, and property valued at $1,000,000.

County Institutes.—A Teachers' Institute of a week's duration is held in every county of the State once a year, under the direction of the Superintendent. The main object of the Institute is to

impart professional instruction. The attendance in 1875 was, of teachers, 13,865; of school directors, 1,935. The lecturers and instructors numbered nearly 500. The several counties appropriated for this purpose $13,145.53.

District Institutes.—Philadelphia, Pittsburgh and all the principal cities and towns in the State, have organizations of teachers meeting for self-improvement, some of them weekly, others less frequently. Seven hundred similar organizations were reported last year in operation in the country districts.

Associations.—A State Teachers' Association was formed in 1852, and has held annual meetings since that time. The attendance of members has sometimes reached over a thousand.

Teachers' Libraries.—Philadelphia has an excellent Teachers' Library. Some other cities and counties have smaller ones.

Teachers' Journals.—The first number of the *Pennsylvania School Journal* was issued in January, 1852, and its circulation is probably larger than that of any other Educational Magazine in the United States. The *Normal Monthly*, *Educator* and *Educational Voice* are papers extensively read by teachers.

Teachers' Examinations and Certificates.—Three grades of Teachers' Certificates are granted by superintendents, and two by boards of examiners at Normal Schools. The first grade of certificate granted by superintendents is called a "Provisional" certificate, and is granted to applicants of good moral character who are found by examination to possess a *fair* knowledge of Orthography, Reading, Writing, Arithmetic, Geography, Grammar, History of the United States, and the Theory of Teaching; and is good only for one year.

The second grade, called a "Professional" certificate, is granted by superintendents to those who possess a *thorough* knowledge of the branches above named, and have had successful experience in teaching. It is good in the jurisdiction where issued for the term of the officer issuing it, and for one year thereafter.

The third grade, called a "Permanent" certificate, is granted by the State Superintendent of Public Instruction to any teacher holding a "Professional" certificate who is recommended by the boards of directors for whom he has taught, a committee of five teachers holding the higher grades of certificates, elected by bal-

lot at the County Teachers' Institute, and by the superintendent of the proper jurisdiction. This certificate is good for life in the urisdiction where issued, and for one year within the jurisdiction of any other superintendent.

The board of examiners at a normal school is composed of the Superintendent of Public Instruction or Deputy, as President, two Principals of Normal Schools, and two county or city Superintendents. The first grade of certificate or diploma, granted by such a board, licenses the holder, a graduate, to teach for two years in any part of the State without examination. The second grade is granted to graduate teachers of two years' standing who make application, recommended by the board or boards of school directors for whom they have taught, and by the Superintendent or Superintendents in whose jurisdiction the teaching has been done. These "Diplomas" are good for life anywhere in the State.

WEAK POINTS IN THE SYSTEM.

The strength of the Pennsylvania system of public instruction is evinced by the fact that it provides a school house and a teacher for every *two hundred and thirty five* of the inhabitants of the State; that it brings to school every year voluntarily, for a longer or shorter time, nearly *one-fourth* of the whole population, men, women and children, and that four millions of people vote annually, of their own accord, over $8,000,000 out of their own pockets for its support. But this system has also its weak points, or points which appear to be weak when compared with similar systems in some other countries. Among these are the following:

1. *Short School Terms.*—The public schools of the State are open on an average a little less than seven months in the year. Those of cities and towns are generally open two or three months longer, and the same is true of those in a few hundred country districts; making in all of long-term schools between one-fourth and one-fifth of the whole number. The length of term in country districts, taken by themselves, will scarcely average six months.

2. *Small Salaries Paid Teachers.*—There are in the State connected with public schools about fifty teachers' positions that pay $2,000 a year and upwards; there may be twice as many more that pay between $1,500 and $2,000, and two hundred would probably embrace all that pay between $1,000 and $1,500.

Several thousand teachers receive salaries exceeding $500 per annum, but a still greater number receive salaries less than that amount, while there are a few who give their services for as little as $15 a month. The average salary in 1875 for male teachers was $41.07 a month, and for female teachers $34.09. But even at these low rates, the State paid her teachers in 1875 nearly $5,000,000, having almost doubled the amount expended in this way in the past ten years.

3. *The Want of Permanent Teachers.*—In most European countries a person who once secures a position as teacher can reasonably count upon keeping it during life, certainly during good behavior. In Pennsylvania, as in the United States generally, teaching has not assumed, except in special cases, the character of a fixed profession or line of business. Of the 17,000 teachers who will have charge of the Pennsylvania schools during the coming year, at least 3,000 will fill the teacher's office for the first time. In 1875 only 4,359 teachers, out of 15,315, excluding Philadelphia, had taught five years or over. The average age of all the teachers in the State does not exceed twenty-six years. The great body of the teachers are young men and women, the sons and daughters of the more intellectual classes; fresh from school or college, ardent, enterprising and ambitious, they do not consider themselves permanent teachers, but look forward to some other field of labor as a life-work.

4. *Non attendance at School.*—While as already stated nearly one-fourth of the whole population of the State attend school some portion of every year, there are probably ten thousand children of school age growing up without any education at all, and a much larger number with so little that its effect upon their life and character is almost imperceptible. The census of 1870 sets Pennsylvania down as having 31,512 youth between the ages of 10 and 21 years who cannot write; and while a large proportion of these are the children of foreigners lately arrived in the country, the fact that so much ignorance exists among us shows that something yet remains to be done to make education universal.

THE WEAK POINTS EXPLAINED.

Not to apologize for defects in our system, but to explain the existence of facts like those above-named, the following observations are appended:

1. It is to be remembered that all questions relating to the length of school terms, the amount of teachers' salaries, the standard of qualifications adopted for the teachers employed, and the measures taken to bring absent children to school, are placed by our laws in the hands of the local school authorities. The Government exerts no direct power whatever in determining them. The results are the product of purely natural, social and political influences emanating from the people. They are an exact measure of what the people know about schools, and what they are willing to do to educate their own children. A much more showy exterior might conceal a much less vigorous life. This effort to provide for an interest so dear to them is calculated to evoke the intellectual and moral force of the whole people. They educate themselves in educating their children.

2. School terms in country districts average only about six months. The schools are generally open in winter and closed in summer. Pennsylvania is an agricultural community. The farms as a rule are tilled by those who own them. As soon as old enough, children in the country are required to work, the girls in the house, the boys on the farm. If it cost no more to keep the schools open ten than it does to keep them open six months, there are thousands of them that would be entirely deserted at certain seasons of the year when farm-work is to be done that can be performed by children. This *home* work is the *industrial* feature of our system. An intelligent countryman will maintain that six months in a school room and six months on a farm is better for a boy than the whole twelve months in the school room. How far wrong is he? His plan at least makes a healthy, intelligent, and industrious people.

3. The teachers' salaries are small, but as matters stand they are fixed by the laws of supply and demand. First-class teachers are fairly paid. Any competent young man who chooses to make teaching a profession and adequately prepares himself for the work is sure of a good salary and an honorable position. There is room for many such. But with teachers up to the present *popular* standard of qualifications the market is so well supplied that the price paid for their services is kept from advancing rapidly. School boards will not pay a high price for what they can get for a low one. The remedy is a demand for a higher standard of qualifications on the part of teachers; and to secure this there

must be brought about a higher standard of intelligence among the people. A strong central government could at once, over the heads of the people, appoint well qualified teachers and give them large salaries; but nothing of the kind can be done in this country, and it is a question whether in the long run it is best to do it anywhere.

4. But few persons who engage in teaching remain in the business for life. This is owing to the social and political condition of the country. A majority of our teachers are ladies, most of them under twenty-five years of age. They teach a little while, and marry. The opportunities of entering into business, of studying a profession, of getting an office, of rising in the world, are so great that ambitious young men teach only until the opportunity comes. Our schools suffer for want of experience on the part of teachers; but they gain something also in freshness, force, and freedom from fixed routine. Those who have not lived in the United States can hardly realize the amount of youthful talent and energy that is found in our school-rooms. It is scarcely too much to say that one-half of the leading men in the country, Governors of States, Cabinet officers, Congressmen, Judges, men eminent as lawyers, doctors, clergymen, merchants, began life as teachers.

5. The number of illiterate persons is happily decreasing in the State. The census of 1870 gives 190,829 as the number above twenty-one years of age who could not write, while 31,512 is the number who could not write between the ages of ten and twenty-one. Few American-born citizens, however ignorant themselves, deprive their children of the advantages of an education, and the foreigners now emigrating to the State are much more intelligent than they were in former years. There is a fair prospect therefore that the evil of non attendance at school can be overcome without resorting to those compulsory measures in use under a different form of government. With the establishment of a sufficient number of institutions for destitute, friendless and vagrant children, there is not a single school district in the Commonwealth of Pennsylvania that cannot, by a vigorous administration of its school affairs, bring voluntarily into school every child of proper age within its limits.

SECONDARY EDUCATION.

The means of Secondary Education in the State are:

1. Public High Schools.

2. Public Graded Schools with Departments for Higher Instruction.

3. Ungraded Public Schools with Pupils in Advanced Studies.

Of these classes of schools there are about twenty-five hundred, with pupils studying the higher branches numbering forty thousand.

4. Academies and Seminaries.

5. Boarding Schools and Private Day Schools.

Of Academies and Seminaries the census of 1870 sets Pennsylvania down as having one hundred and thirty-eight, with ten thousand nine hundred and eighty-seven pupils; and of Boarding Schools and Private Day Schools, four hundred, with sixteen thousand one hundred pupils. In these institutions probably one-half, or thirteen thousand five hundred and ninety-four of the pupils, study one or more of the higher branches.

6. The State Normal Schools.

The Normal Schools furnish instruction in the higher branches annually to about three thousand students.

HIGHER EDUCATION.

In 1870, according to the census, Pennsylvania had six Universities and thirty-three Colleges, with three hundred and forty-nine professors, and six thousand three hundred and fifty-seven students, of whom one thousand four hundred and seventy were females. Not all the institutions thus reported enjoy full collegiate rank. There are in fact only about twenty-five hundred students in the regular college classes of Pennsylvania institutions. The colleges proper are all chartered by acts of the Legislature; a few of them have been aided by grants of land or appropriations of money from the State; but in the main they have been founded and are endowed and supported by the different religious denominations.

TECHNICAL EDUCATION.

In the European sense Pennsylvania has no great technical school; but an effort is being made to do something in the direction of technical education.

The Polytechnic College, of Philadelphia, was organized in

1853. It comprises a scientific school and five technical schools. It has a good faculty and an increasing number of students.

The Lehigh University and Pennsylvania State College are more technical than literary in their aims, and are doing a good work in fitting young men to direct the various industries of the State.

Lafayette College, the University of Pennsylvania, and the Western University of Pennsylvania have strong, well-organized technical departments.

The Night School for Artisans, under the public school authorities of Philadelphia, the Department of Technical Education connected with the High School at Pittsburgh, the addition of branches of study of a technical character to the courses of High Schools in others of our cities, all point clearly to the adoption of a policy favorable to technical education.

The Franklin Institute, of Philadelphia, has long labored in the cause of practical science; and the Wagner Free Institute, more recently established, is doing a good work in the same direction. We have two flourishing Art Schools or Schools of Design, one in Philadelphia and the other in Pittsburgh. There are also Commercial Schools and Schools of Dentistry, Music, Elocution and Calisthenics.

In the field of Natural Science, Art and Literature, Pennsylvania can point with pride to the American Philosophical Society the American Historical Society, the Numismatic Society, the Academy of Natural Science, and the Academy of Fine Arts; and the general intelligence of her people is shown by her 14,849 public and large private libraries, containing 6,377,845 volumes; her 600 periodicals, circulating nearly 4,000,000 of copies; and her hundreds of flourishing Lyceums and Literary Societies.

PROFESSIONAL EDUCATION.

The Medical Colleges of Pennsylvania are widely known. There are also a number of Theological Schools and several Law Schools.

SOLDIERS' ORPHAN SCHOOLS.

In 1865, Pennsylvania established a comprehensive system of schools for the destitute orphans of her soldiers killed or crippled in the late civil war. Into these schools 8,500 children have been gathered from all parts of the State, fed, clothed, instructed and

LIBRARY OF CONGRESS
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